

MODERN TACTICS.

CAPTAIN H. R. GALL,

LATE 5th FUSILIERS.

FOURTH EDITION.

REVISED, WITH NEW MAPS.

PART I

"Battle is the final aim of all combinations of war. The first object ought to be to secure a victory; the second, to render it as complete as possible; the third, to prevent a defeat from becoming disastrous. The thoroughness of a victory or the mitigation of the evil consequences of a defeat depend upon knowing how to utilize time and place."—Rüstow.

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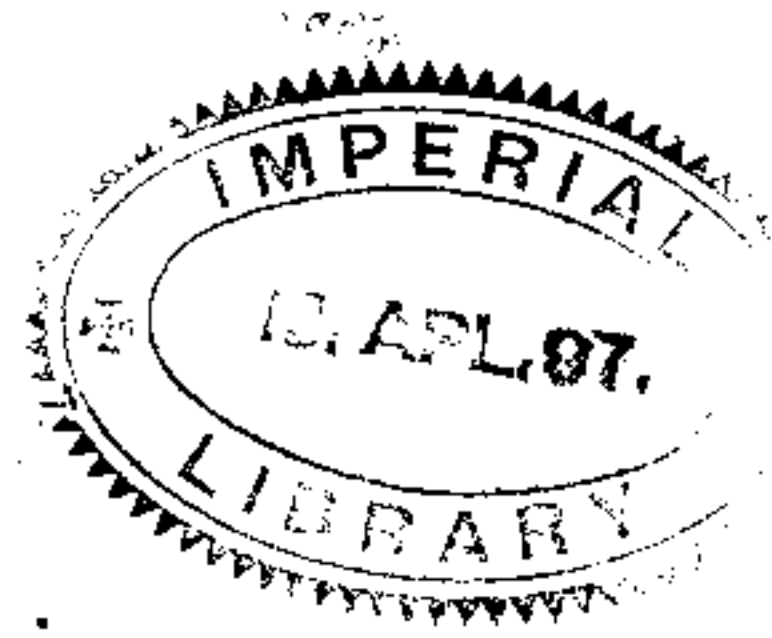
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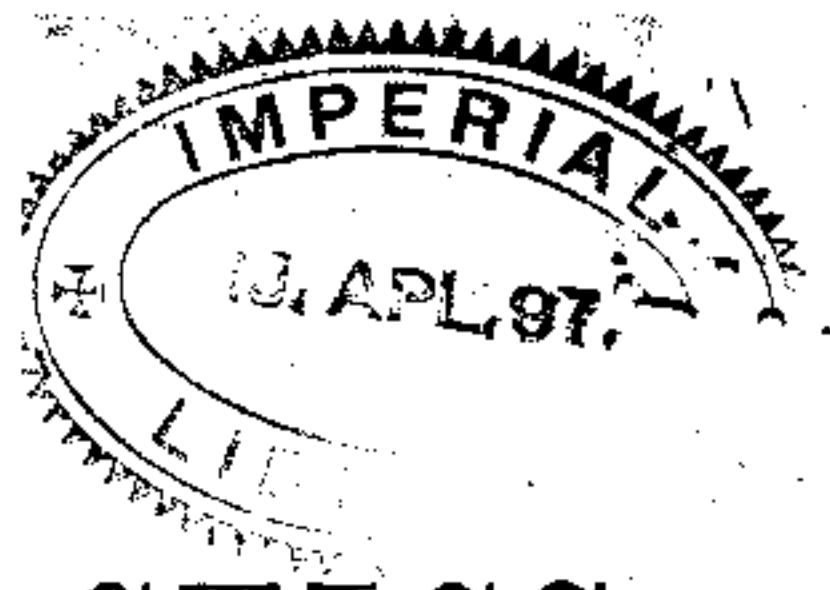
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DEDICATED

BY PERMISSION TO

FIELD MARSHAL RT. HON. G. J.
VISCOUNT WOLSELEY,

K.P., G.C.B., G.C.M.G.,

COMMANDER-IN-CHIEF.

NOTICE TO FOURTH EDITION.

1. **T**HIS edition has been rewritten in accordance with the principles laid down in the Artillery, Cavalry, and Infantry Drill Books, 1896.

2. Special attention has been paid to minor tactics, several new tactical problems have been worked out with the aid of maps, and the reasons for the course adopted have been fully stated.

3. Writing orders for the march, and for the disposition of troops, has received special attention. The necessity for legibility, conciseness, clearness, and methodical arrangement of all orders has been pointed out.

4. With permission of the Controller of Her Majesty's Stationery Office, the tactic papers and maps set at recent Staff College Entrance, Promotion, and Militia Competitive Examinations have been reproduced as a Supplement to this Work. The solutions of some of the problems in Applied Tactics have been worked out in connection with the various chapters; others are left for the student to solve with the aid of the Maps.

5. Lieut.-Colonel Eustace Balfour, London Scottish R.V., has corrected the chapter on the Employment of Cyclist Infantry up to date.

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DEFINITIONS.

“Alignment.”—Any straight line on which the front of a body of troops is formed, or is to form.

“À Cheval.”—A deployment “à cheval” means a deployment on both sides of a road, stream or crest-line.

“Abatis” is an obstacle formed of branches of trees laid close together, with branches towards the enemy.

“Base of Operations” is the actual starting place from which an army in a field proceeds to encounter an enemy, and to which it looks for reinforcements and supplies, and to return to recover itself if beaten. “An intermediate base” may be established between a force in the field and its base as above defined.

“Battery.”—A work erected as a position for guns—the tactical unit of artillery.

“Battalion.”—The unit of infantry.

“Blockhouse.”—A covered loopholed building.

“Casemate.”—A field casemate is a shell-proof chamber, the roof of which is covered with at least four feet of earth.

“Cone of Fire.”—When a volley is fired at a target, the paths of the bullets in the air form a curved cone of fire.

“Defilade” is a term used in fortification. Troops are said to be “defiladed” when they are protected from the enemy’s fire, as when they are on the reverse side of a hill.

“Defile” is a passage which can only be traversed by troops on a tactically narrow front. A narrow passage.

“Double Lines of Operation” are the different lines of operation used by armies who advance from different starting points to the same destination.

“To Deploy.”—To move out from column into a shallower formation.

“Escalade.”—An assault by means of ladders, or climbing.

“Enfilade” is fire directed along the length of the object aimed at.

“Echelon.”—A formation of successive and parallel units fronting in the same direction; each on a flank and to the rear of the unit in its front.

“Fire Unit.”—Any number of men firing by the executive command of one man.

“Grand Tactics” decides the different orders of battle, whether they are to be defensive or offensive, conducted on interior or exterior lines, whether troops are to refuse a flank or to be concentrated on flanks or centre. They embrace the general scheme of a battle, and are exclusively the affairs of the commander-in-chief.

“Gun Epaulement.”—A raised parapet to protect a gun in action.

“Gun Pit.”—Sunken protection for a gun in action.

“Interior Lines of Operation.”—An army is said to be operating on “interior lines” when its lines of operation are such that it can concentrate before the enemy can concentrate. The enemy in this case would be acting on “Exterior Lines.”

“Inner and Outer Reserves.”—“Inner Reserve.”—A body of troops placed behind the first line of defence, either to cover its retreat, or to make counter-attacks within the position if penetrated.

“Outer Reserve.”—A body of troops placed to support an advanced position, or on the exposed flank of a position, to make counter-attacks outside it.

“Lateral Communications” are the roads kept open between forces acting in concert for the purpose of mutual support and rapid concentration.

“Light Troops” is a term applied generally to all detachments pushed out from the main body of an army, and include the cavalry screening an army, advanced guards, outposts and reconnaissances of all descriptions.

“Lines of Communication” generally mean the roads by which an army in the field gets its reinforcements and supplies from its base.

“Lines of Operation” comprise the whole system of roads by which an army marches to its destination.

“Logistics” is the art of regulating details of marches, encampments, hospital arrangements, stores, baggage, &c.

“Lunette” is a work with two faces, forming a “salient angle,” and two other faces, called “flanks,” parallel, or nearly so, to the capital.

“Mobility” is the power of an army to concentrate in a certain place in a condition to take the field. The term is used in a minor sense in connection with moving troops rapidly to the right place at the right moment on the field of battle.

“Moral” means discipline.

“Objective.”—That point which it is the object of a force to gain.

“*Point d'appui*” is a point on which either an army or a company can rest when turning. There is a “*point d'appui*” in every parade movement, as well as in every grand or minor operation of war.

“Pontoon.”—A flat bottomed boat used for “floating bridges.”

“Rallying Line” is a position selected in rear of the front line, only to be occupied in case of a reverse.

“Redoubt.”—A small closed work with no flank defence for its ditches.

“Reduit,” or “Keep.”—A work constructed within another work, or fortified place.

“Strategy” is the art of conducting a campaign, moving troops on the *theatre of war*.

“Strategic Points” are places or fortresses, the possession or capture of which are considered likely to influence the conduct of a campaign.

“Squadron.”—The unit of cavalry.

“Tactics” is the art of manœuvring troops when in contact with or in the vicinity of the enemy. Moving troops on the field of battle.

“Tactical Units” are the combatant subdivisions of an army. “A Complete Tactical Unit” combines the three arms.

“*Tête de Pont*” is an open work constructed for the defence of a bridge and affords protection to troops while waiting to march over the bridge.

“Theatre of War” embraces the entire districts in which operations of war are conducted, after one side has infringed upon the territory of the other.

“Traverse,” a mound of earth built as a protection from fire.

“To Flank” a regiment or a battery is to afford it defensive support by posting troops or guns parallel to or in ~~rear of its flanks~~.

“To Invest” is to surround a fortress, or an entrenched position, and cut it off from supplies and reinforcements.

“To Outflank” a position, or a force, is to manœuvre round its flank, and subject it to *enfilade fire*, or a shock attack in flank, or oblige an enemy to form front on a line at right angles to his original position.

“To Refuse a Flank” is to withdraw troops in rear of their general alignment.

“Unaimed Fire” is fire directed at an intermediate point, with an elevation to carry the projectile beyond, in order to strike an unseen object which is known or believed to exist at a certain range. It is also the term applied in the Drill Book to rifle fire within the limits of the ~~2nd zone~~, i.e., 1,700 to 800 yards from the enemy’s position.

“Vital Points” are places the possession of which must materially influence the issue of a battle.

“Zone of Fire” is that portion of ground embraced within the range of projectiles directed over it.

“Beaten Zone” is that portion of ground struck by projectiles fired with the same elevation, and directed on the same object: its depth decreases as the range increases; the width of ground beaten increases with the range.

“Zone of Premature Shells” extends to 600 yards in front of guns.*

“Zone of Short Bursts” within 600 yards from the target guns are firing at.

* At ranges under 1,500 yards on the level it is dangerous for guns to fire over friendly troops (Artillery Drill, 1896).

THE TACTICAL ORGANISATION OF THE BRITISH ARMY (WAR STRENGTH).

Service Abroad.

A COMPANY OF INFANTRY.

Major or captain	.	.	.	.	1
Lieutenants	.	.	.	.	2
Sergeants	.	.	.	.	5
Corporals	.	.	.	.	5
Drummers or buglers	.	.	.	.	2
Privates	.	.	.	.	101

Total all ranks 116

A Company is the fighting unit of infantry.

For tactical purposes a Company is 100 men in the ranks exclusive of officers and supernumerary rank.

A BATTALION OF INFANTRY.

The total strength of a Battalion at war strength is 1,096 of all ranks, 96 of whom are left at the base, and 72 are included in the headquarters detail.

A Battalion in the field is eight companies, each 116 strong, and headquarters detail 72, making 1,000 of all ranks. For tactical purposes it is 800 men in the ranks, exclusive of officers and supernumerary rank.

A Battalion is the tactical unit of infantry.

For detail of Battalion *vide* Appendix.

AN INFANTRY BRIGADE.

- 4 Battalions.
- 1 Machine gun section.
- 1 Company Army Service Corps.
- 1 Bearer company.
- 1 Field hospital, 100 beds.

AN INFANTRY MACHINE GUN SECTION.

Officer	.	.	.	.	1
N.C. officers and men	.	.	.	.	12
Guns, each drawn by one horse or mule	.	.	.	.	2
Forage cart, two horses	.	.	.	.	1
S.A.A. cart, two horses	.	.	.	.	1

Its tactical employment in the field is directed by the officer commanding the brigade, who is usually a major-general.

For details of company Army Service Corps and Bearer company *vide* Appendix.

AN INFANTRY DIVISION.

- 2 Complete infantry brigades.
- 1 Divisional squadron of cavalry.
- 3 Batteries field artillery.
- 1 Divisional ammunition column.
- 1 Field company Royal Engineers.
- 1 Company Army Service Corps.
- 1 Field hospital.

An infantry division, usually commanded by a lieutenant-general, is a complete tactical unit, comprising all three arms. Sometimes on service a regiment of cavalry is detailed to each division.

A SQUADRON OF CAVALRY.

Major or captain commanding	1
Captain	1
Lieutenants	4
Sergeants	8
Corporals	8
Trumpeters	2
Farriers and shoeing-smiths	4
Privates	97

Total all ranks 125

For tactical purposes a squadron is 96 sabres, exclusive of officers and *serrefiles* (equivalent to supernumerary rank in infantry).

A squadron is the tactical unit of cavalry.

A BATTERY FIELD ARTILLERY.

Major	1
Captain	1
Lieutenants	3
Sergeants	9
Corporals	6
Bombadiers	6
Trumpeters	2
Gunners	76
Drivers	63
Farriers	4
Artificers	4

Total all ranks 175

A Battery has six guns and six ammunition waggons, each drawn by six horses, and is the fighting unit of artillery.

• A FIELD COMPANY ROYAL ENGINEERS.

Officers	7
N.C. officers and men	206

The detail of equipment, &c., varies with the special descriptions of work it is expected to perform.

A DIVISIONAL AMMUNITION COLUMN.

Officers	3
N.C. officers and men	192

Carriages.

S.A.A. carts	10
Gun carriages	1
A.S. waggons (with limbers)	2
Ammunition R.A.	6
A.S. waggons R.A.	18
Forage waggon	1

For other details *vide* Appendix.

AN ARMY CORPS.

- 3 Complete infantry divisions.
- Headquarters and 1 squadron of cavalry.
- 2 Batteries horse artillery.
- 6 Batteries field artillery.
- 1 Corps artillery ammunition column.
- 1 Ammunition park.
- 1 Field company Royal Engineers.
- 1 Pontoon troop.*
- 1 Telegraph battalion.*
- 1 Balloon section.*
- 1 Battalion infantry.
- 1 Machine gun section (2 guns).
- 1 Company army signallers.*
- 1 Company Army Service Corps.
- 1 Company bakery column.*
- 1 Field hospital.

The detail of artillery with an army corps is taken from the Field Artillery Drill, 1896.

Howitzer batteries are kept as a special reserve for employment against entrenched positions, &c.

Probably two field batteries would be required on the line of communications for a force composed of an army corps and a cavalry division, which would be taken from the corps artillery (Artillery Drill Book, 1896).

For all other details of organisation and equipment *vide* Appendix.

* For details see Appendix.

A BRIGADE DIVISION OF ARTILLERY. •

A brigade division of horse artillery is two batteries.

A brigade division of field artillery is three batteries.

A brigade division is the tactical unit of artillery, commanded by a Lieutenant-Colonel R.A.

A CAVALRY REGIMENT.

For tactical purposes a cavalry regiment is four squadrons, each 96 sabres, exclusive of officers and serrefiles.

For detail of a cavalry regiment *vide* Appendix.

A CAVALRY BRIGADE.

3 Regiments.

2 Machine guns.

1½ Companies Army Service Corps.

A CAVALRY DIVISION.

2 Brigades each of three regiments.

2 Batteries horse artillery.

1 Divisional ammunition column.

1 Battalion mounted infantry, with

2 Machine guns.

1 Company Army Service Corps.

1 Field hospital.

A COMPANY OF MOUNTED INFANTRY.

Officers	5
Sergeants	6
Artificers	5
Buglers	2
Corporals	6
Privates	97
Drivers	6
Waggonmen	2

Total all ranks 129

For detail of a Battalion of Mounted Infantry *vide* Appendix.

STAFF, TRANSPORT, AMMUNITION, TOOLS, ARMS and EQUIPMENT (*vide* Appendix).

A CAVALRY BRIGADE.

- (a.) 1 Battery R.H.A.
3 Regiments of Cavalry.

In this case it is an independent body similar to a division.
(Cavalry Drill, 1896.)

- (b.) 2 or 3 Regiments of Cavalry.

In this case the brigade forms a component part of a cavalry division. (Cavalry Drill, 1896.)

The Cavalry Drill, 1896, says a Cavalry Division consists of two or three batteries of horse artillery, and three brigades of cavalry.

The brigades will be designated by the names of their commanders.

A CAVALRY BRIGADE (HOME DEFENCE).

Staff	5	officers	22	all ranks.
3 Regiments	93	"	1803	"
Machine gun section	1	"	18	"
1 battery R.H.A.	6	"	180	"
Ammunition column	4	"	108	"
Mounted detachment R.E.	4	"	118	"
2 Companies mounted infantry	14	"	278	"
Machine gun section	1	"	18	"
1 company A.S. Corps	5	"	155	"
1 Bearer company	3	"	64	"
$\frac{1}{2}$ Field hospital	3	"	23	"
Total	139		2787	"

MODERN TACTICS.

CHAPTER I.

ADVANCED CAVALRY.

“CAVALRY is really the eye with which an army sees. It should find out the enemy's marching columns, his camps, his outposts, and encircle the foe as with an elastic band, yielding to his pressure when it is strongly exercised, but closing upon and following him when he retires.” *

The commander who can obtain reliable information regarding the enemy, and is at the same time able by means of his cavalry to keep his own dispositions secret, is in a most advantageous position. He can take the “initiative,” and force his adversary to conform to his movements.

A leader of an army in the field may be likened to a blind man. His advanced cavalry acts the part of the dog, working with a considerable amount of latitude and independence in front of him; his advanced guard is the stick which wards off immediate danger. But a blind

* Goltz.

man's dog must be trained to do its work, and can even then only be useful under certain conditions; so, in the absence of efficient cavalry, or when the nature of the country prohibits its use, a general is dependent on his advanced guards, and the information he can obtain by means of their patrols and scouts.

To drop metaphor, the sphere of action of advanced cavalry is "strategical" as well as "tactical," while that of advanced guards is only "tactical." Although independent of each other, these duties are closely connected; and until the screening cavalry is either penetrated or driven back by the enemy, the advanced guards can be reduced in strength, at any rate while the enemy is known to be beyond striking distance of the marching columns, and in like manner outposts may be limited to a few piquets.

The independent strategic sphere of action of advanced cavalry must not be confounded with the tactical and comparatively restricted reconnoitring duties of the squadrons and regiments which may compose the vanguard of a column of troops when marching, nor with a reconnaissance in force, composed of cavalry and artillery, with perhaps some infantry, sent out from the main army with some particular object, nor with the other "detached" duties of cavalry, such as raids, requisitioning, escorts to convoys, advanced outposts, &c.

"The first duty of a body of cavalry ordered to reconnoitre is to gain and keep touch with the enemy, to drive back any opposing cavalry, and approach the main detachments of the enemy's infantry, so as to discover their positions and report their movements. Special tasks may in addition often be assigned to the commander of a reconnoitring force, such as:—

- "1. To destroy magazines, railways, telegraphs, and so hinder the enemy's concentration.

“2. Seize special points which may be of use to its own army, or the loss of which may seriously affect the enemy's plans.

“3. To cover the mobilisation and subsequent movements of its own army by keeping the enemy at a distance, and by protecting railways, telegraphs, &c., from his raids.

“The cavalry commander must of course receive his instructions from army headquarters regarding what is required of him, and must also know the daily halting-places of the heads of columns and of army headquarters, and the means available for transmitting information; but as regards the execution of his mission he must be accorded full liberty of action. He will decide whether contact with the enemy is to be gained by special reconnaissance patrols and contact squadrons, or whether by the ordinary forward progress of the division.”

“At the commencement of operations, when uncertainty exists regarding the enemy's whereabouts, officers' patrols, supported by contact squadrons, will generally be pushed out to places where indications of the enemy are likely to be found. While these reconnoitring detachments seek to clear up the general situation, the mass of the cavalry moves, more or less concentrated, according to the nature of its mission.” *

The distribution of the cavalry divisions, brigades, or regiments pushed out in front of an army will depend on:—

- I. The number of objectives.
- II. Whether the object is to obtain information or to prevent the enemy from obtaining information.

* Cavalry Drill, 1896.

III. The nature of the country.

IV. The character and tactics of the enemy's advanced troops.

In these days of enormous armies the advanced cavalry can no longer be expected to form a continuous screen stretched across the entire front of the huge fractions which compose them.

Prior to moving forward from its allotted place of mobilisation, whither it may have been transported by rail, each of these fractions forming in themselves complete armies will be preceded by its advanced cavalry, which must not be too widely extended, or it might easily be broken through; on the other hand, if over concentrated it would be liable to be circumvented.

The country to be explored should be divided into sections, and lateral communications must be established between the different bodies of cavalry allotted to reconnoitre the adjacent sections of country at certain prearranged places. The most suitable formation for advanced cavalry to move in resembles that suggested by moving outposts. Patrols consisting of one or two troops detailed from advanced squadrons are sent out about four or five miles to the front and flanks. The advanced squadrons furnishing the patrols are supported by advanced regiments, followed by main bodies in rear, composed of either divisions, brigades, or regiments accompanied by horse artillery.

During the daytime reconnaissance is best carried out by patrols. There is a distinction between the class of reconnaissance required from small patrols, under an officer or non-commissioned officer with six or eight men, pushed out from a contact squadron, and that of a reconnoitring party sent out from the main body of a force with a definite mission and acting independently;

the former has to discover and report upon the movements of the enemy to the squadron leader, who should establish himself on some commanding ground in rear of his patrols where he can receive their reports, and, after collating them, transmit information to the commander of the regiment or brigade in rear.

In order to perform these reconnoitring duties, on the intelligent performance of which so much depends, non-commissioned officers and men must be able to identify country and places with the aid of their maps, and make accurate observations as to numbers, formations, direction of movements, and other details of the enemy when he is observed; all which requires constant instruction and practice, together with an intimate acquaintance with the tactics of the three arms.

Non-commissioned officers as well as officers should be able to write reports clearly and concisely, and the men must be constantly practised in carrying and delivering messages quickly and accurately to the proper persons, and should be able to find their way over any sort of country with the aid of a map. A selected messenger should be acquainted with a report entrusted to him, and made to repeat its contents so as to be able to give prompt and clear answers concerning them if questioned by general or other staff officers.

The front of a single regiment acting alone in advance of a small force with three advanced squadrons pushed out and one kept in support, will vary from about one-and-a-half to three miles interval between the advanced squadrons. If the object is to screen the force in rear from the reconnaissances of the enemy the intervals between the advanced squadrons will be less than if the object is only to reconnoitre. A single regiment thus extended could hardly be expected to offer

much resistance, but if resistance is contemplated the advanced squadrons must be followed by larger bodies strong enough to support them if necessary. The act of breaking through the enemy's screening troops requires the power of speedy concentration, while the necessity for opposing similar attempts on the part of the enemy necessitates having formed bodies in rear to stop him.

“Supposing an advanced cavalry division to be operating in a country which is practicable for cavalry, with a brigade on each of three roads it may be considered sufficiently concentrated if the main bodies of the brigades on the flanks are six or seven miles apart, and the centre brigade follows intact as a reserve three miles in rear of the others. The dispositions might then be as follows: Each of the flank brigades would throw forward one regiment termed ‘advanced regiment’ two or three miles, and each of these advanced regiments would again send out one, two, or even three squadrons (advanced squadrons) to a similar distance, which would extend roughly level with each other, and at an interval of one-and-a-half to three miles, the remaining squadrons of each advanced regiment forming a ‘support.’ Each advanced squadron has its own advanced guard, which furnishes scouts and flankers.” *

This arrangement takes the form of “moving” outposts. The advanced squadrons are the piquets furnishing patrols and sentries. The advanced regiments are the supports, and the brigades are the reserves, and the principle is that of small bodies pushed to the front with ever-increasing larger bodies in rear.

“In the case of one road only being available, one

* Cavalry Drill, 1896.

brigade might cover the front and act as advanced guard to the other two.”

“If there are two routes, one brigade might move on the less important road, and the other two on the one which from the general situation is considered the more important, one of the brigades being held back at some distance in support of the other two.” *

“The squadrons in the front line of the reconnoitring body of cavalry are termed ‘advanced’ squadrons, to distinguish them from all other detached reconnoitring squadrons, which are termed ‘contact’ squadrons.”

Cavalry fights may be expected to take place, and the side which in addition to covering the necessary front can concentrate a superior force to that of its opponent’s most quickly in any required direction will be best distributed.

In an open country communications between the advanced squadrons can be kept up by communicating patrols, and in a close country where movements are confined to the roads communications must be established between advanced squadrons when the cross-roads admit of it. Connecting posts must be left at selected places on the main line of advance to receive and transmit reports from the front, or orders from the rear, and special connection must always be maintained between the advanced cavalry and the army it is covering. This is done by means of connecting posts established along the principal roads leading to the rear. The number and situation of these posts will vary, but as a rule the posts should not be further than five miles apart, and an officer should be detailed to superintend four posts. Connecting posts consist of not less than six men under a non-commissioned officer.

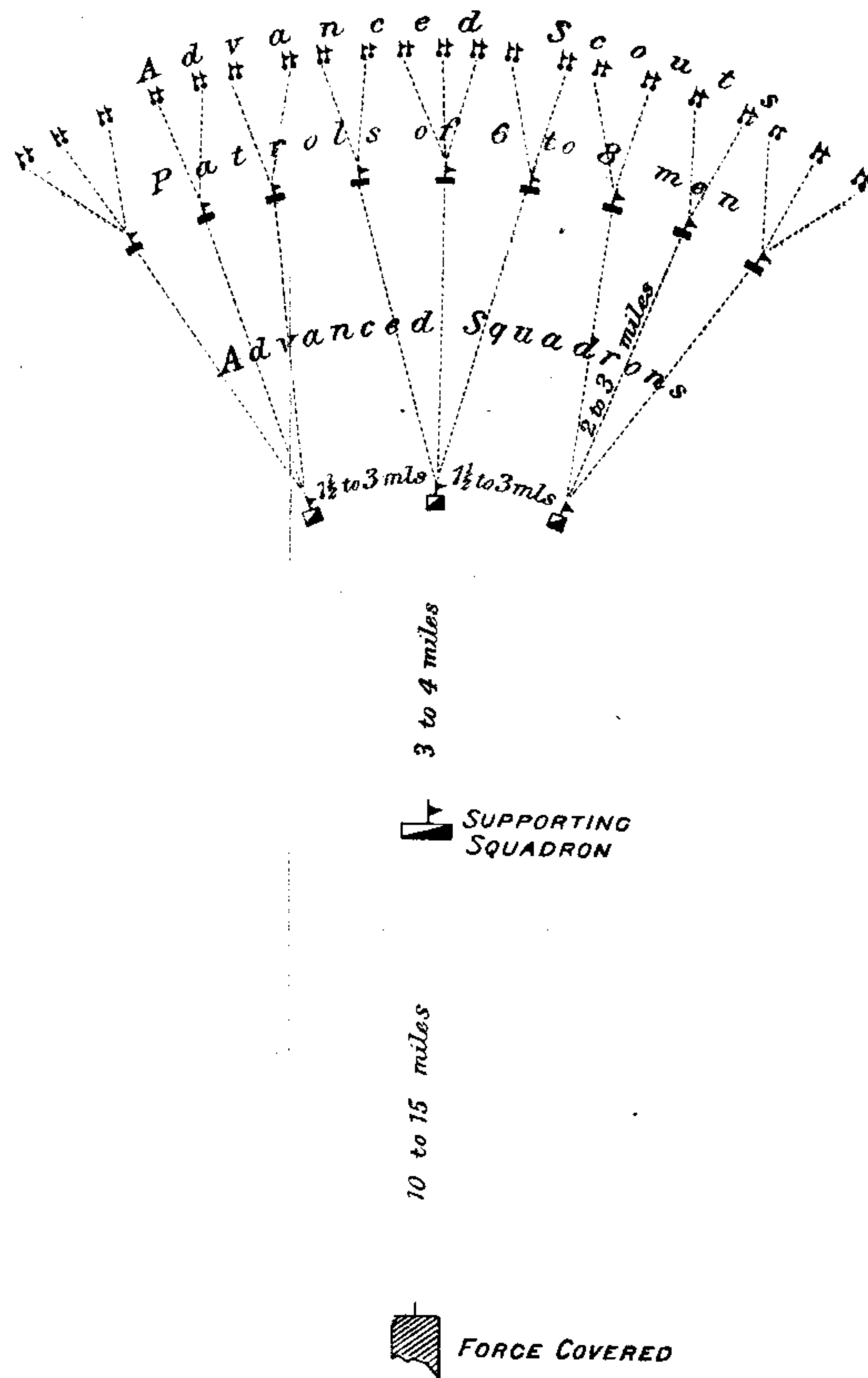
The main bodies of the advanced cavalry move concentrated, with advanced and rear guards along the roads, their positions being regulated by the movements of the advanced squadrons. The advanced squadrons furnish reports to the regiments or brigades in rear of them as to their progress and where they intend to pass the night. The chief duty of reconnoitring devolves on the patrols and the scouts pushed out from them. Scouts should generally be sent out in pairs; they must not go out too far, or they are liable to be cut off. At the same time they should endeavour to keep touch with the enemy. Every commander of a patrol ~~squadron~~, or larger reconnoitring body is responsible that contact with the enemy, once established, is never abandoned without definite orders to that effect from a proper authority.

Advanced and Contact Squadrons.

Advanced squadrons keep generally level with each other, and act in concert with the squadrons on the right and left on the same principle as piquets; and as this formation facilitates communication and concentration it should be preserved.

Contact squadrons are pushed forward independently beyond the advanced squadrons to establish and maintain touch with the enemy, or are detached to carry out some special mission; such, for example, as the destruction of a railway junction, line, or telegraph; seizure of a bridge or defile; to establish communication with another force, reconnoitre a locality, &c., &c.

Before starting, the leader of a contact or detached squadron should have clear instructions as to the information required, and should be told where the headquarters will be found each night, so as to know where to send reports.



RECONNOITRING FORMATION OF A SINGLE ADVANCED
CAVALRY REGIMENT IN OPEN COUNTRY

Contact or *detached* squadrons are entirely independent, and may be detached for several days at a time.

When long distances have to be rapidly covered, for the sake of mobility small detachments called "officers' patrols" are "sometimes detached for advanced reconnoitring purposes. The strength of these detachments depends upon circumstances, and will vary from two or three individuals, or two officers alone, to perhaps complete squadrons, which can remain in contact with the enemy for a considerable time." *

It is of importance to understand the difference between the above-mentioned "officers' patrols," which are in effect small contact squadrons, and those patrols detached from the "advanced" squadrons; the latter can hardly be considered independent, although they may frequently have to act on their own initiative.

The distance which advanced cavalry is pushed forward during the early stages of a campaign will depend—

I. On the enemy with whom it seeks to establish touch.

II. On the country to be traversed, and the strength of the cavalry force available.

It varies from one to four or five days' march in front of the army covered.

The final phase of advanced cavalry work is covering the army which the information it has sent back has put either in motion or on its guard. Until the main bodies of hostile armies arrive within striking distance of each other, their advanced guards if they are moving, or their outposts if they are stationary, are still covered by the bulk of their cavalry acting in front of but in concert

* Cavalry Drill, 1896.

with them. The duty of the cavalry during this stage is still to oppose that of the enemy, which even if it has been previously encountered and driven back, has probably not yet been seriously defeated, and is still more or less actively employed in front of and on the flanks of its own army. In fact until the actual collision is about to take place, and the artillery and infantry are getting into their positions to give battle, the cavalry endeavours to scout and give warning ahead. The necessity for vigilance increases as the distance between hostile armies decreases. Strategy is about to give place to tactics, and the duty of advanced cavalry at this stage is to make itself acquainted with minute details of localities. Its dispositions must still admit of rapid concentration to oppose the enemy's cavalry, which will probably be actively employed in making demonstrations and covering tactical manœuvres. If patrols well supported are kept out in all directions these movements will be observed and reported almost as soon as they are conceived. It was in the performance of these duties that the German advanced cavalry excelled over that of the French in the latter part of the war of 1870. Exploring localities in the neighbourhood of the enemy, keeping up communications between their own columns, and covering their concentration, watching the approaches to and the movements of the enemy, they kept their generals informed of the dispositions of the French troops while they continued to veil the operations of their own armies until they were ready to attack.

Cavalry cannot work satisfactorily in a very mountainous, wooded, or much intersected country, where they are at the mercy of a few skilfully-handled riflemen.

When the nature of the country prohibits the employment of cavalry, or in the absence of this arm, information must be obtained by infantry patrols sent out from the advanced guards, or outposts, supplemented, if necessary, by reconnoitring parties specially detailed from the main body of the army.

Examples of the Employment of Cavalry in Reconnoitring an Enemy.

All in strict accordance with the 1896 Regulations.

(Taken from the Cavalry Drill Book, 1891, by permission.)

The following examples are intended to give a general idea of the manner in which the advanced reconnoitring duties of cavalry would be practically executed.

(See Map at the end of this Chapter. Plate II.)

EXAMPLE I.

General Idea.

A brigade, consisting of three regiments, in camp at Aldershot, forms part of the advanced cavalry of an army corps advancing from Alton (which is some 12 miles S.W. of Aldershot) against an enemy at Wokingham, who is supposed to be moving on Alton by Blackwater and Aldershot.

Orders are given to the officer commanding the brigade to place himself in contact with the enemy, and to report as to the exact direction of his march, &c.

Instructions issued by the Brigadier.

The main body of the brigade will march at 4 a.m. to-morrow to Blackwater, where it will arrive about 5 a.m. If no reports are received of the enemy, it will advance to Sandhurst, where it will arrive about 5.30 a.m.

The — regiment will perform the more advanced

reconnoitring duties, and will march at 3 a.m. The officer commanding that regiment will issue his own orders, and make his dispositions so as to cover the advance of the main body and attain the object laid down in the general idea.

Ordinary reports are to be sent every hour to the brigadier, who will be with the main body. When the enemy is once felt, reports are to be furnished every half-hour. Important information is to be transmitted at once.

Orders by Officer Commanding Advanced Regiment.

In accordance with brigade orders, the regiment will march at 3 a.m. to-morrow. The squadrons will proceed by the undermentioned routes:—

1st Squadron.—By Mitchet Farm, Frimley Green, over Chobham Ridges, past the Jolly Farmer, to Cæsar's Camp.

2nd Squadron.—By Farnborough Green, Blackwater and Sandhurst, to Wellington Station.

3rd Squadron.—By Fleet Pond, through Minley Woods, over Hartford Bridge Flats, to Finchhampstead.

4th Squadron.—By same route as 2nd squadron to Sandhurst.

This squadron will march at 3.30 a.m. and will form a support to the three advanced squadrons.

Reports are to be furnished by squadron leaders to the officer commanding, who will be with the support as laid down in brigade instructions.

Observations upon the Advance of the Brigade.

The support leaves a connecting post of two men at Aldershot, in order to receive and transmit any report

that may arrive after it has marched. Similarly when it advances to Sandhurst, it leaves a post at Blackwater.

The main body acts in a similar manner.

The squadron leader, 1st squadron, on arrival at the Jolly Farmer, leaves there a post of four men, with orders to communicate with the 2nd squadron and support by the main Bagshot-Blackwater road. This post dispatches two men to Blackwater, and upon their return, after communication with a post left there by the 2nd squadron and with the support, the whole party rejoins the squadron. On arriving at Cæsar's Camp, the squadron leader establishes communication with the support by means of a connecting post at Broadmoor Farm.

The squadron leader, 2nd squadron, leaves a post at Blackwater to communicate with the 1st and 3rd squadrons and support, and advances to Wellington Station, establishing touch with the 1st squadron by means of a communicating post at Lodge Hills.

The squadron leader, 3rd squadron, leaves a post on Hartford Bridge Flats to communicate with the 2nd squadron and support at Blackwater. This party acts in the same manner as laid down for the post of the 1st squadron at the Jolly Farmer. The squadron leader, on arrival at Finchhampstead, establishes communication with the support by a small connecting post at Hall Farm.

According to the communications received from the reconnoitring squadrons, the commanding officer of the advanced regiment makes the most favourable dispositions for his support, and issues instructions to the advanced squadrons, bearing in mind the object assigned to him.

The brigadier acts in a similar manner, in accordance with the communications received from the officer commanding the advanced regiment

According as the enemy is reported to be advancing on Bagshot, Blackwater, or Hartley Row, the brigadier disposes his main body, not so much with the object of opposing the enemy's advance as of keeping in contact with him, and thereby being able to render the necessary information to the general commanding the army corps at Alton.

This example has for its object the intention of giving a general idea of how communication is preserved when the main body and the advanced squadrons are on the move.

EXAMPLE II

General Idea.

It is reported to the commander of the main body of an army at Alton (which is some 12 miles S.W. of Aldershot) that the enemy is in the neighbourhood of Wokingham. He is supposed to be marching on Alton by Sandhurst and Aldershot, but his strength is not known, and it is doubtful whether he will take the supposed route or one more to the east or west.

A brigade of cavalry, consisting of three regiments, is sent to Aldershot with an order to explore the country in the direction of Wokingham until it encounters the enemy, to keep in continual contact with him, and to report exactly on his force and the direction of his march.

Having arrived at Aldershot in the evening, the officer commanding the brigade learns from people coming from Maidenhead (which is some 10 miles north of Wokingham) that a considerable force of the enemy, consisting of infantry, artillery, and cavalry, had in reality arrived at Maidenhead, and encamped to the east

of that town, and that a portion of his cavalry had been sent forward to Wokingham.

Instructions issued by the Brigadier.

The brigadier will remain with the main body of the brigade at Aldershot until further orders.

The — regiment will proceed to the front at 3 a.m. to-morrow.

The officer commanding that regiment will issue his own orders, and make his dispositions so as to attain the object laid down in the general idea.

Ordinary reports are to be sent to the brigadier at Aldershot every hour. When the enemy is once felt, reports are to be furnished every half-hour. Important information is to be transmitted at once.

Orders by Officer Commanding Advanced Regiment.

In accordance with brigade orders, the regiment will march at 3 a.m. to-morrow. The squadrons will proceed by the following routes:—

1st Squadron.—By Mitchet Farm, Frimley Green, and over Chobham Ridges, to the Jolly Farmer, one mile south-west of Bagshot, sending patrols to Bagshot and along the road which leads to Cæsar's Camp.

2nd Squadron.—By Farnborough Station and Hawley House, to Blackwater, sending patrols to Sandhurst and Yateley.

3rd Squadron.—By Fleet Pond, through Minley Woods, on to Hartford Bridge Flats, near 332 on the map, sending patrols to Finch-hampstead and Eversley. If no enemy is felt, the squadron will push forward to Eversley Cross.

4th Squadron.—To Farnborough Station. This squadron will form a support to the three advanced squadrons.

The latter should arrive at their destinations at about 4.30 a.m. They will at once communicate with one another and with the support, and their leaders will establish the necessary posts, so as to keep up connection with the support at Farnborough Station.

Reports are to be furnished by squadron leaders to the support as laid down in brigade instructions.

Operations of the 1st Squadron.

Before marching off, the squadron leader studies his map and assures himself that he thoroughly understands the route by which he is ordered to proceed.

He consults with the 2nd squadron leader as to the proposed route of his squadron and the positions of his communicating posts, in order that he may be able at any time to communicate with the 2nd squadron.

The squadron leader thinks it necessary to caution every man in the squadron that, when employed in reconnoitring the enemy, it is most essential that they should gain some definite and accurate information before reporting to the commander of the party from which they are detached. He reminds them that the great tendency of every man is to gallop back and report in an exaggerated manner directly the enemy is discovered, and points out to them that, when a patrol meets the enemy, it should endeavour to ascertain his strength, &c., as accurately as possible; one man should then gallop back and report, whilst the remainder hang on to the enemy and watch his further movements.

At 3 a.m. he marches off covered by an advanced guard, consisting of a troop formed as advanced party and support.

On arrival at Mitchet Farm he detaches a patrol of a non-commissioned officer and four men across the canal, with orders to proceed along the high ground on his right flank, to cross the canal again at Frimhurst, and rejoin the squadron on Chobham Ridges; a similar patrol is also detached with orders to proceed by Miners' Arms and to rejoin the squadron at Frimley Green.

The commanders of these patrols are made to repeat their orders before marching off.

Before crossing the railway into the village of Frimley Green, the squadron leader halts his squadron for 10 minutes, sending forward the advanced guard officer and four men of the advanced party into the village to enquire from the inhabitants whether anything has been heard of the enemy.

A patrol of 10 men, commanded by an officer, is sent forward to Frimley, with orders to reconnoitre that village, to communicate with the 2nd squadron at Sign House Farm, and rejoin the squadron at the Jolly Farmer. This officer is directed to leave a connecting post of a non-commissioned officer and two men at Frimley, in order to establish a line of communication between the 1st squadron on its arrival at the Jolly Farmer and the support at Farnborough Station.

The officer commanding this patrol, on arrival at Frimley, communicates with the 2nd squadron (or with a post left by it) at Sign House Farm, dispatches a message to the squadron on Chobham Ridges by the road leading past "The Firs," detaches a patrol of a non-commissioned officer and two men with orders to proceed by York Town and Camberley to the Jolly Farmer, leaves a connecting post at Frimley as directed, and advances by the direct road to the Jolly Farmer.

The squadron leader proceeds with his squadron in a

north-westerly direction, over Frith Hill on to the Chobham Ridges, where the patrol that was detached at Mitchet Farm rejoins him.

The squadron advances to the Jolly Farmer along the west slope of Chobham Ridges, a patrol being detached on the right flank with orders to proceed along the eastern slope, and to rejoin the squadron at the Jolly Farmer.

On arrival at the Jolly Farmer, the squadron leader draws in the advanced guard and disposes his squadron with all necessary precautions, posting look-out men in front and on the flanks as a security against surprise. When he has received the reports of the detached patrols he dispatches messages to the officer commanding the regiment, who is marching with the support, and to the 2nd squadron leader, informing them of his arrival at the Jolly Farmer, and communicating any information which he may have collected.

The message dispatched to the officer commanding the regiment is sent to Frimley, and the connecting post at that village transmits it to Farnborough Station.

The one dispatched to the 2nd squadron is sent to a communicating post of the 2nd squadron at Camberley, and is transmitted by it to the 2nd squadron leader at Blackwater.

The squadron leader then sends forward the under-mentioned patrols :—

An officer and 12 men to Cæsar's Camp.

A non-commissioned officer and six men to Earlywood Farm.

A non-commissioned officer and four men to Rapley Farm.

The officer commanding the patrol sent towards Cæsar's Camp is directed to gain information from the inhabitants whether anything has been seen of the enemy

in that neighbourhood, and to send advanced scouts in every direction to try to get in contact with the enemy.

The patrols sent to Earlywood Farm and Rapley Farm are directed to remain there until further orders, the former being ordered to send advanced scouts to the village of Sunninghill.

The officer commanding the patrol sent to Cæsar's Camp, on arrival at that place, finding the country clear of the enemy, sends a report to the 1st squadron leader, and pushes forward to the village of Easthampstead.

He halts his patrol near Easthampstead, and sends advanced scouts to Bracknell and along the railway, furnishing a second report to the first squadron leader as soon as they return.

The squadron leader remains with his squadron at the Jolly Farmer, awaiting further orders from the officer commanding the regiment.

Operations of the 2nd Squadron.

The squadron leader, having consulted with the 1st and 3rd squadron leaders as to the proposed positions of their squadrons and communicating parties, so as to be able to communicate with them at any time, marches off at 3 a.m.

He adopts the same measures as laid down for the 1st squadron leader, detaches patrols down the flank roads, communicates with the 1st and 3rd squadrons, and establishes a connecting post at Sign House Farm.

On arrival at Blackwater he sends messages to the officer commanding the support and to the 1st and 3rd squadron leaders. If any message has arrived from the 1st and 3rd squadrons he sends back the same communicating patrol.

The squadron leader then sends forward the following patrols :—

An officer and 12 men to Sandhurst, with orders to send advanced scouts along the main Sandhurst-Wokingham and Sandhurst-Easthampstead roads.

A non-commissioned officer and six men to Camberley, with orders to act as a communicating post to keep up communication with the 1st squadron, and to send advanced scouts into and north of the Royal Military College woods.

A non-commissioned officer and four men to Yateley.

These patrols act under similar instructions to those given to the patrols of the 1st squadron.

After reports have been received from the patrols, the squadron leader dispatches a second report to the officer commanding the regiment.

Operations of the 3rd Squadron.

The squadron leader, acting in the same manner as laid down for the 1st squadron leader, establishes a connecting post on the main Cove-Minley road, at the cross roads near Whitehouse Farm.

On arrival at Hartford Bridge Flats, having sent a message to the officer commanding the regiment through the post near Whitehouse Farm, and to the 2nd squadron by means of a communicating patrol to Blackwater, the squadron leader sends forward the following patrols :—

An officer and 16 men through Eversley Cross to Finchhampstead.

A non-commissioned officer and four men to Eversley.



If no reports are received of the enemy the main body of the squadron advances to Eversley Cross, leaving a second connecting post on Hartford Bridge Flats, half-a-mile east of 332, and a communicating post with the 2nd squadron, between Yateley and Totley Hill.

On arrival at Eversley Cross, the squadron leader directs the officer's patrol to push forward to California, and to send advanced scouts to feel towards Wokingham, with a view of ascertaining whether that town is occupied by the enemy or not.

If the officer can do this from some height, or by means of a few intelligent men without being discovered, so much the better. But if he cannot attain the object in this manner, he must reconnoitre boldly—that is to say, by sending forward a few men, supporting them at a short distance, and endeavouring to push back the enemy's weak patrols and ascertain the movements of his main body.

From Eversley Cross the squadron leader sends reports to the 2nd squadron by way of Yateley, and to the officer commanding the regiment by the post on Hartford Bridge Flats and that near Whitehouse Farm.

Operations of the Support (4th Squadron).

The officer commanding the advanced regiment remains with the support at Farnborough Station, receiving the reports from the three advanced squadrons, and transmitting them to the officer commanding the main body.

At 3.30 a.m. he sends a patrol consisting of one officer and eight men to Hartley Row.

On arrival at Hartley Row the commander of this patrol reports to the commanding officer of the regiment, and awaits further orders, sending advanced scouts in the direction of Mattingley.

Operations of the Main Body.

The plan of operations of the brigadier depends upon the reports sent in by the officer commanding the advanced regiment.

He must make his dispositions according as the enemy is reported to be in the direction of Eversley, Sandhurst, or Easthampstead; if touch with the enemy is not gained, he must remain in a state of uncertainty.

If it should be necessary to push the reconnaissance further to the front the support and main body will have to advance in order to support the movement of the advanced squadrons.

It will be supposed that the enemy is reported upon first from one direction, then from another.

(1) THE ENEMY IS REPORTED TO BE AT EASTHAMPT-
STEAD AND MARCHING DUE SOUTH ON ALDERSHOT.

The brigadier advances with the main body to Frimley, and directs the officer commanding the advanced regiment to advance with his support to Camberley, and to issue his own orders to the advanced squadrons.

Orders by Officer Commanding Advanced Regiment.

The 4th squadron will advance to Camberley, where it will arrive about 6 a.m.

The patrol sent to Hartley Row will rally on the 4th squadron (the order being sent through the post near 332).

The 1st squadron will advance towards Cæsar's Camp, great care being taken that the woods on its right flank are thoroughly reconnoitred, and that the enemy does not pass unperceived by Rapley Farm or Earlywood and Windlesham.

The 2nd squadron will advance to Broadmoor Farm.

The 3rd squadron to Wellington College Station.

The above orders are sent at once to each of the three advanced squadrons, in order that they may keep up communication with one another and with the support.

The orderlies who take the above-mentioned orders to the different squadrons convey also a written order to the various communicating parties to rejoin their squadrons.

The orders sent to the advanced squadrons ought to be transmitted at a trot or at a gallop.

The communicating parties should rejoin their squadrons at a trot and walk; they will consequently arrive at the old position of their squadrons after the latter have marched, but they will find there a small party to indicate the route taken by their respective squadrons.

Further Operations of the Advanced Squadrons.

The 1st squadron, advancing towards Easthampstead, finds the enemy in that neighbourhood and reports upon him.

The patrol at Earlywood Farm is directed to fall back to the cross roads leading to Sunninghill and Sunningdale.

A patrol of one officer and six men is sent to Rapley Farm to strengthen the patrol already at that place.

A connecting post is established at Lower Star Post (junction of 11 roads, two miles north of Camberley), so as to keep up constant communication with the support at Camberley.

The 2nd squadron, if not checked by the enemy, advances to Broadmoor Farm, establishing a connecting post at Woodman's Lodge.

The 3rd squadron in like manner advances to

Wellington College Station, establishing a connecting post at 199, between Sandhurst and the Royal Military College.

On arrival at their new positions the three squadron leaders at once send in a report notifying their positions and those of their connecting posts.

Further Operations of Support and Main Body.

The 4th squadron advances to Camberley, a small post being left at Farnborough Station in order to receive any messages that may arrive after the departure of the squadron.

The main body marches to Frimley.

If the enemy is really at Easthampstead or in that neighbourhood, one or other of the advanced squadrons must finally come in contact with him, and every means must be used to ascertain his strength, the composition of his force, and the direction of his march.

If the enemy's patrols prevent the reconnoitring patrols of the advanced squadrons from obtaining the above information, the commanders of these squadrons must temporarily take the offensive, act with the greatest promptitude, drive back the enemy's patrols, proceed rapidly to the front as far as possible, and, once the object is attained, retire on a previously arranged rallying point.

The object of the general idea would thus be fulfilled, supposing the enemy to be in the vicinity of Easthampstead.

(2) THE ENEMY IS REPORTED TO BE IN THE VICINITY OF BARKHAM, AND MARCHING TOWARDS FINCHAMPSTEAD.

In this case it is probable that the enemy will direct his march over Hartford Bridge Flats, through Aldershot, to Alton, or by Hartley Row, through Odiham, to Alton.

In either case it will be advisable for the main body and support to take the route of the 3rd squadron, and take up a position on Hartford Bridge Flats.

The 3rd squadron would be directed to proceed to Eversley, and to send patrols to watch the bridges over the Blackwater at Well House and Smith's Farm.

The 2nd squadron to a position between Yateley and Eversley Cross.

The 1st squadron to Sandhurst, connecting posts being established in the same manner as in the preceding example.

The object of the general idea would thus be fulfilled, supposing the enemy to be in the vicinity of Barkham.

General Remarks.

The duties of reconnoitring an enemy, as illustrated in the two previous examples, can be properly executed only by a cavalry which has had constant practice in time of peace.

The officers must be thoroughly acquainted with their duties, resolute and active. They should by practice have acquired the power of seizing the opportunity, should have an eye for country, and know how to adapt themselves to the most critical circumstances, and they must understand thoroughly the capabilities of each individual man under their command.

The non-commissioned officers and men must have been well instructed both theoretically and practically, and must act boldly but cautiously; they must thoroughly understand how to find their way about country, and must have implicit confidence in their officers.

The exercises in reconnoitring an enemy should be practised first of all by troops or squadrons, then

by wings, and finally by regiments. During large manœuvres they will be practised by brigades.

In the exercises of a troop or squadron the main body should always be supposed. The troop or squadron should preserve a line of communication, at the end of which (the point where the commanding officer of the support would be) the officer superintending the reconnaissance should usually place himself; this officer may detail someone in his place with instructions to send successive orders and receive all reports, whilst he himself inspects the dispositions made by the reconnoitring troop or squadron.

Each day a different point may be taken as the supposed position of the enemy, and the squadron may be thus exercised in various kinds of country.

An opposing force may sometimes be sent out with advantage to act against the reconnoitring troops; but great care must be taken that the object to be attained by the reconnoitring troops is thoroughly understood and constantly borne in mind.

The following is a brief example of how a single squadron might be exercised:—

General Idea for the Exercise of a Squadron.

The squadron forms part of a regiment detached from a brigade at Aldershot, with orders to feel towards Wokingham, and place itself in contact with the enemy's cavalry, which is supposed to be in that neighbourhood, and report upon his movements, &c.

The squadron will march at 6 a.m., and proceed by Farnborough Station, Hawley, Blackwater road, to Sandhurst, where it will await further orders, sending patrols in the direction of Wokingham and Easthampstead. Connection is to be kept up with the support, which is supposed to be at Farnborough Station.

CHAPTER II.

RECONNOITRING.

WHEN hostile armies are close to each other the independent reconnoitring of advanced cavalry usually requires to be supplemented by specially detailed reconnoitring parties, in addition to the ordinary reconnoitring duties connected with advanced guards, flank guards, and outposts.

A general in the field must obtain information about what is going on around him; or he cannot either march or halt his troops with any feeling of security.

Instances of the disasters entailed upon armies in consequence of their commanders neglecting to reconnoitre are recorded in the history of the losing side of nearly every campaign that has been fought.

There is no need to go far back in military history to justify this assertion. "In 1859 the French army, numbering 125,000 infantry, 11,000 cavalry, and 300 guns, met the Austrian army, 146,000 infantry, 15,000 cavalry, and 700 guns, in full march at Solferino, neither army being aware of the vicinity of the other."*

Although encamped within a few miles of each other, these great armies were ignorant of each other's dispositions. The French were marching in a formation better suited than that of the Austrians for deploying,

* Hamley's "Operations of War."

and to this most important requirement, especially in the encounter between armies when in motion, they largely owed their success.

In 1866 the ~~Austrians~~ failed utterly, partly owing to their inferiority of armament ; but also in a great measure because their reconnoitring was inferior to that of the Prussians.

In 1870 the French disasters were largely attributable to the same cause, while the Prussian system, though it was by no means perfect, prevented surprise. The Austrians in 1866, and the French in 1870, were repeatedly taken unawares, and severely beaten.

Another striking instance of the disastrous consequences attending the neglect of reconnoitring is furnished by the Russian and Turkish war of 1877. After the capture of Nikopolis, on the 16th July, General Krüdener, commanding the 9th Army Corps, was ordered to occupy Plevna, and secure the right flank of the Russian army from attack during its contemplated invasion of Turkey across the Balkans. Plevna is only 20 miles south of Nikopolis.

On the 17th July Osman Pasha, with an army of 40,000 regular troops, crossed the Vid river on the right flank of the Russians, and occupied Plevna in their immediate front, almost within striking distance of Krüdener's head-quarters. General Krüdener had an ample force of cavalry, but he was not informed of this movement.

On the 18th Krüdener directed General Schilder-Schuldener to take a brigade of infantry, 32 guns, and the 9th Don Cossacks, march on Plevna, and occupy that town. Schilder-Schuldener started the same day, bivouacked half-way between Nikopolis and Plevna, and remained all that night in ignorance of the fact that Osman Pasha with

a large force was directly in front of him. On the morning of the 19th Shilder-Schuldener continued his march northwards. His cavalry, in place of covering his column, was considerably in rear of his right flank, presumably looking out for the Turks, who had slipped past into Plevna two days previously. In the afternoon, Shilder-Schuldener's column suddenly found itself under the fire of some Turkish batteries. The next morning, the 20th July, without any knowledge of the strength of the enemy's position, the Russian commander attacked a force about four times his own strength, and one, moreover, occupying an entrenched position. He was terribly beaten; and so ended the first battle of Plevna. The whole tide of the campaign turned at this point. This battle of the 20th July was followed at intervals by what are known as the second and third battles of Plevna, and afterwards by the investment of the place, all equally disastrous to the Russians.

A glance at the map of the Balkan Peninsula (Plate XXVIII.) will help the reader to realise the situation above briefly alluded to.

The English army, like that of other nations, has often neglected to reconnoitre, and has had to pay the penalty. Some of our experiences in South Africa, Afghanistan, and Egypt have impressed upon every British commander the paramount importance of obtaining information regarding the enemy's movements.

Reconnaissances may be divided under the following two heads :—

I. Reconnaissances in force.

II. Reconnoitring parties and patrols.

A reconnaissance in force is composed of cavalry and artillery, or a combined force of the three arms, and is generally entrusted with an aggressive mission. If the commander is told to unmask the enemy already in position, and force him to disclose his dispositions and numbers, a considerable display of force will probably be necessary. The enemy's outposts would resist any attempt to penetrate them; but such resistance must be overcome by the commander of a reconnaissance in force, for he cannot reconnoitre the enemy's main positions until he has driven in his outposts.

An experienced officer, seeing the enemy form up for battle, will, under favourable conditions of weather, rapidly gather a lot of information regarding the position he is occupying, and the distribution of his troops.

When reconnoitring an enemy in position, the following are some of the most important points to be noticed and reported on:—

- (i.) The enemy's advanced posts, their situation and importance.
- (ii.) Where the most resistance is likely to be met with.
- (iii.) The extent of front occupied, and where the flanks rest.
- (iv.) Whether the flanks are naturally or artificially protected.
- (v.) Whether the position is fortified with redoubts, field works, and entrenchments.
- (vi.) Whether the position favours counter attack, and, if so, the probable direction of such counter attack.
- (vii.) The enemy's main artillery positions.
- (viii.) The positions of the enemy's reserves, and probable rallying position.

(ix.) The best ground for frontal and for flank attacks.

(x.) Artillery positions from whence these attacks can be prepared and supported.

(xi.) Whether the position can be turned within tactical limits.

(xii.) Places from whence the enemy's batteries can be enfiladed.

A general must be prepared to act at once on information thus seized, as the enemy may alter his dispositions.

The tactics of a reconnaissance in force usually partake of the nature of a raid directed against the enemy's outposts at daybreak.

When a reconnaissance in force has a strategical object in view, such as the discovery of the opposing general's plan of campaign, his points of concentration, lines of operation, &c., it has a wider sphere of action.

A good example is furnished by General Gourko's reconnaissance in force over the Balkans in July, 1877. On the 30th June, three days after the passage of the 8th Russian Army Corps over the Danube, the Grand Duke Nicholas gave orders for a reconnaissance in force under the command of General Gourko, to be pushed forward to Tirnova and Selvi. Subsequent orders were sent to Gourko to gain possession of a pass in the Balkans by which the army could cross.

At the same time, Gourko was to send his cavalry forward north of the Balkans, to cut the railroads and telegraph, and gain as much information as possible regarding the numbers, movements, and dispositions of the Turks. To do this a force of about 14,000 men was placed at Gourko's disposal, composed of $10\frac{1}{2}$ battalions of infantry, 32 squadrons of cavalry, and 32 guns, including two mountain batteries.

Starting from Tirnova at the head of his flying column, on July 12th, in eight days Gourko gained possession of three passes in the Balkans, having overcome the most extraordinary obstacles, the difficulties of the road rendering it necessary for the guns to be dragged by infantry for a distance of several miles. Debouched into the valley of the Tundja, Gourko dispersed various bodies of regular Turkish troops, disarmed the populace, and raided the country.

After capturing the Shipka Pass from its southern outlet on 19th July, between that date and the 5th of August General Gourko's cavalry carried panic into the heart of Turkey, destroyed portions of the railroad and telegraph on the principal lines, gathered accurate information concerning the strength and positions of the Turkish forces advancing toward the Balkans, and finally, when directed to fall back (owing to events on the north side of the Balkans), Gourko covered his retreat with his cavalry in presence of an army three times as numerous as his own force.

A full and interesting account of this brilliant reconnaissance is given by Lieutenant Greene, U.S. Army, in his valuable work on the Russian and Turkish war, 1877-78.

When a reconnaissance in force is composed of cavalry and artillery only, greater latitude may be given to its commander. A good example was afforded during the American war, and is mentioned in Colonel Denison's "*Modern Cavalry*": "General Stuart, of the Confederate army, made a magnificent armed reconnaissance in front of Richmond in 1862, by which he gained information as to the position of the enemy's lines, which enabled

* Now Colonel Greene.—"*The Russian Army and its Campaigns in Turkey in 1877-1878.*" Second Edition. (W. H. Allen & Co.)

General Stonewall Jackson, a few days afterwards, to fall upon the flank and rear of General M'Clellan's army with confidence and effect." This reconnaissance, its object being attained, afterwards assumed the character of a raid. General Stuart, with his cavalry and artillery, made a complete circuit round the Federal army, passing by their left flank along the rear, and returning by their right flank, cutting in all directions the Federal communications, burning and destroying a large amount of property, and capturing a number of horses. He showed that a bold cavalry leader may sweep completely round an enemy's position, while a less daring commander, haggling for information, and timidly engaging his light troops, may discover nothing.

Reconnoitring parties are moving parties sent out from the "main body" of a force, whether stationary or advancing, in order to gain information about the enemy, whether in the immediate front or at a distance. They often precede advanced guards, whilst at other times they are employed independently to gain information beyond the sphere of advanced guards or outposts. Reconnoitring parties do not conform to the movements of the main body. They endeavour to supply the information on which the movements and dispositions of the main body will depend. They are not intended to fight.

The general instructions given to the commander of a reconnoitring party, whether composed of cavalry or infantry would contain :—

- (a) A clear statement of the information required, and the mission upon which the party is sent.
- (b) The intentions of the commander of the force from which he is detached.
- (c) All that is known regarding the enemy which might influence the commander of the party.

(d) When ordinary reports are to be sent.

The mode of carrying out his mission must be left entirely to the discretion of the leader of the party.

The principal objects for which small reconnoitring parties are used are :—

I. To discover the enemy's numbers and movements.

II. To report on a position occupied by an enemy.

III. To make a military survey, or search a limited area of country with a view to ascertaining if the enemy is there.

The strength of a reconnoitring party will vary with the object it has in view, the amount of opposition it is likely to meet with, and the distance it has to go out; from six men up to a squadron for cavalry, and from a section of infantry up to a company. The composition of a reconnoitring party, like its strength, will depend on the object to be attained and the distance to be traversed, the nature of the country and the kind of opposition it is likely to encounter. Cavalry is the best arm, and is specially trained for the purpose, can work more quickly, see further, and extricate itself from awkward situations more rapidly than infantry. In savage warfare, when there is no cavalry available, the superior mobility of mounted infantry makes it preferable to ordinary infantry. When long distances have to be traversed, and obstacles such as rivers or defiles intervene, a combination of cavalry and mounted infantry with machine guns is sometimes desirable; the mounted infantry and machine guns to hold the bridges, or defiles, and, by securing its retreat, enable the cavalry to reconnoitre beyond them. In the absence of mounted infantry, if the reconnaissance is beyond the limited radius of infantry support, the defiles must be held by dismounted cavalry. When very close to the enemy's outposts, and in a mountainous,

thickly wooded, or much intersected country, the work of reconnoitring is best performed by infantry. The distance that cavalry may be pushed out is from 15 to 30 miles, but infantry parties should rarely go more than five or six miles from camp.

Before starting the commander should explain to his assembled party his proposed plan of action, and will assure himself that the officers and N.C. officers are provided, as far as procurable, with a map of the country to be traversed, with the roads traced in red, and the rivers in blue, and a transparent cover,

- Compass,
- Sketching materials,
- Forms of report in general use,
- Knife,
- Matches,
- Pair of field-glasses,
- Watch.

The officer in command of a party should be particular to impress on his party the desirability of obtaining information by stealth, and that encounters with the enemy should be avoided as much as possible; and that if the party is surprised every man must act for himself and rally on his leader as soon as possible; he must arrange for the safety of the report and the carrying on of the reconnaissance in the event of his being killed or disabled; prohibit shouting and galloping about, and direct that all communications are to be conveyed, as much as possible, by signal.

The formation of all reconnoitring parties, whether composed of cavalry or infantry, should be such as will guard against surprise, and at the same time ensure secrecy, and provide for the escape of at least one man if the party is cut off.

A suitable formation for a small reconnoitring party would be:—Two or three men in advance, supported by a stronger party, a couple of flankers on each side the main body, and a few men as rear-guard. The distances between the fractions being altered to suit the mobility of whichever arm is employed. When on the move, parties, or patrols, detached from parties, will invariably be preceded by scouts, who will detach flankers to crown heights, skirt round villages and small woods, turn short defiles, and examine any places within scouting distance capable of concealing the enemy, or affording a view of the surrounding country.

Scouting.—Scouts sent out from a reconnoitring party, or patrol detached from it, should usually work in pairs, one man being in command. No rules can be laid down as to the distance scouts should be detached, but five or six miles may be considered the limit for cavalry, and half-a-mile to one mile for infantry. Each scout should understand what he has to look for, and if detached to a certain distance, how and at what place he is to make his report.

At night reconnoitring parties move more concentrated than by day, with their scouts closer in, and their flankers withdrawn. When approaching the enemy's outposts, main roads leading up to them should, as a rule, be avoided, as they are nearly certain to be watched.

Halting places by day should be selected with a view to guarding against surprise. High ground which affords a good view in all directions is best.

When a reconnoitring party halts for the night it should select some small wood or isolated house near a road. A sentry or a vidette should always be posted on the road. When quartered in a village precautions must be taken to ensure security and secrecy.

It is sometimes desirable to change the bivouac after dark. A sharp look-out must be kept in all directions, and no fires should be lighted if likely to attract attention.

No officer should ever start on a reconnaissance of any sort without making every effort to obtain the best map procurable, or at least a rough trace of it; and as he goes along he should compare it with the country and correct errors, making any additions he thinks likely to be useful.

Colonel Denison relates how, on the map used by General Lee before Richmond, there was an inaccuracy which, in spite of the careful reconnaissances he had made, was never corrected. There existed two roads, one called the Quaker road, the other had no name. On General Lee's map the latter road was wrongly marked as the Quaker road. General Lee, making his plans by this map, ordered Magruder to march by the Quaker road to a certain position. General Magruder was conducted at night by his guide by the real Quaker road, and found out his mistake too late to be of service at one of the most critical junctures of that memorable series of battles.

Although the information brought back by a single party may be somewhat meagre, it must be borne in mind that a general would probably send out a dozen patrols in different directions, and the budget of information thus obtained may be very complete.

After a victory, especially in bad weather, cavalry patrols should be sent along all the roads to discover what line of retreat the enemy has taken.

General Hamley points out that a reconnaissance made on every road after the battle of Ligny would have saved Napoleon at Waterloo, which battle he fought under the impression that the Prussians were routed and closely pursued by Grouchy. But Grouchy pursuing with

20,000 troops mistook the road, so that Blucher appeared on the field of Waterloo with 60,000 fresh troops, and fell upon the right flank of the French.

Again, General Hamley points out how Wellington, pursuing a wrong road under a false impression, failed to gather the proper fruits of the victory of Salamanca. The Prussians, after the battle of Wörth, in which they completely routed the French, failing to send out reconnoitring patrols, lost touch with their defeated opponents, and did not know, next day, even in what direction the French had retreated.

If a reconnoitring party falls in with the enemy in superior force, his movements should be watched at a distance by scouts, and special precaution taken to guard against being cut off by keeping a sharp look-out wide on both flanks. If stopped in its work by an inferior party of the enemy, it may sometimes be advisable to drive him in at once, and try and find out what is behind him before he is reinforced.

A reconnoitring party is sometimes specially ordered to try and make a prisoner, when, of course, a certain amount of aggressive action may be necessary; but as a rule all engagements should be avoided as much as possible.

“Reconnoitring parties, when they come in contact with the enemy, must consider that their real work has only just begun. Their object now is to see and not be seen, and to transmit rapidly every item of information gained.

“The rules for action on coming into actual collision with parties of the enemy are the same as for advanced guards.” *

* Cavalry Drill, 1896.

When the object is to reconnoitre an enemy's outposts, the principal points to be observed are :—

- I. The roads leading up to or round them.
- II. The observation line.
- III. What the flanks rest on, and whether advanced or drawn back.
- IV. Whether fortified as if they were holding the ground the enemy intends to fight on.
- V. Places left unguarded, and whether the sentries are alert and vigilant, and the strength of the outposts.
- VI. Direction and frequency of the enemy's patrols.
- VII. If possible the position of the enemy's main body, and whether encamped near to or at some distance from the outpost line.
- VIII. Changes which take place at daybreak.
- IX. Hour of relief.

As an instance of the sort of enterprise required for individual or secret reconnaissance, Colonel Denison relates the following anecdote : “ Before the battle of Königgrätz, a Prussian officer, reconnoitring, left his escort of two troopers hidden in a safe place, as near to the Austrian outposts as he deemed it advisable to approach on horseback, and thence proceeded alone on foot. Not being challenged, he passed through the Austrian outposts, and had actually entered the fortress before his uniform attracted attention. When made prisoner and taken before the Austrian commandant, he said he had come to summon the garrison to surrender, as the Prussians would shortly be in a position to bombard the town. This proposition was refused, and the Prussian officer, who expected nothing else, having meanwhile

obtained a great deal of important information, was conducted back through the Austrian outposts."

As might be expected, troops who were capable of being tricked in this way were not possessed of very much knowledge of reconnaissance; and that will probably explain Marshal Benedek's corresponding ignorance of the Prussian movements. Before the battle of Königgrätz, any Austrian officer lying hidden in a fir-wood, which was close to the position, could have counted every battalion and squadron that the Crown Prince of Prussia moved towards Miletin on the Austrian right flank, and a knowledge of "Spaces and Time" (see Chapter III.) would have enabled him to estimate their strength. In making a reconnaissance to find out and report upon an enemy's movements and numbers, a knowledge of the rate of marching and the space occupied by the different arms is indispensable.

Information about an enemy may be obtained (1) By personal observation of his troops; for this purpose every point of vantage should be seized upon. (2) By the traces he leaves; bivouac fires, smoke in villages, tracks on roads, deserted camps, &c. (3) Questioning inhabitants. The data on which calculations are based must always be given, due allowance being made for the seasons and the appearance of roads, fords, &c., in wet and fine weather. It may easily happen that a report of the surface of a district furnished in the month of June may be entirely misleading if acted upon in the month of December.

When reconnoitring an unfordable river (of about the same breadth throughout within the limits of his reconnaissance) to select a good place to construct a bridge with a view to surprising, or if necessary forcing the passage, an officer should bear in mind the following

tactical considerations, and report on those places which he considers fulfil most of the conditions here mentioned.

- I. A place where the enemy does not hold a bridge within striking distance by which he might cross and deliver a counter attack. If such a bridge exists it must be reported with a view to its being watched by a detached force.
- II. Cover on the enemy's side close to the river suitable for a small force of infantry to seize and hold, such as a village or a wooded height. This cover should be situated so as to defilade the bridge during its construction, and there must be room beyond it for the deployment of the main body when it crosses.
- III. Command of bank if possible; at any rate artillery positions giving range and room to work the guns.
- IV. A salient bend towards the assailants to enable them to bring a convergent fire to bear on the enemy's side of the crossing place.
- V. A place where several roads converge and suitable cover within a few miles of the river bank for the concentration of the main body.
- VI. A tributary stream leading from this place to the river joining the latter above the proposed crossing place, to enable the bridging material, pontoons, &c., to be floated down, and thus save exposure and labour.
- VII. An island or islands, to break the length of the bridge and enable it to be commenced at several places simultaneously.
- VIII. Good sound banks on both sides, and not

so steep as to necessitate the construction of ramps.

A general usually encamps his troops behind the position he intends to fight upon, which he covers with his outposts, supplemented by patrols pushed out towards the enemy. We have seen that one way of obtaining information regarding an enemy's main position is to break through his outposts with a reconnaissance in force. The objection to this method is that the enemy knows you have got it, and can change his dispositions. It sometimes happens that an officer employed alone, or in conjunction with another officer, can manage to elude the outposts, and get close enough to the main position to reconnoitre it. Sentries are stationary; only the patrols moving in front of them will have to be avoided; and in the dark this may be accomplished. Napoleon often made great use of the information he obtained by secret reconnaissances, and Wellington also. No hard-and-fast rules can be laid down for the guidance of officers employed on these duties; but a thorough knowledge of the principles of tactics of all arms acting singly or in combination is indispensable.

When the object of a reconnaissance is to obtain a military survey of the seat of war, or the country immediately surrounding an army in the field. So important a duty would usually be entrusted to a specially selected staff or engineer officer; but, nevertheless, any officer or non-commissioned officer may be called upon to perform, or help to perform, such duty.

A military survey is a map of country made expressly with a view to give the information required for military purposes. Ordinary maps do not supply the information required by the commander of a force, who wishes to take advantage of the accidents of ground and whatever cover

may be obtainable. Owing to the increased accuracy of modern firearms "cover," even for a few companies, is often of the utmost importance.

In a military survey the following are the principal points to be noted :—

- I. Surface of the country, close or open, situation of suitable camping-grounds, and ground for artillery positions. Mountainous, hilly, or wooded.
- II. Roads, state of repair, width, appearance in wet or dry weather. Lateral roads, where do they branch off and lead to?
- III. Towns and villages, construction of houses, and situation of principal buildings.
- IV. Rivers and streams, their depth, breadth, current, command of banks, approaches, fords, bottom, tributary streams, bridges, boats, easy and difficult crossing places, islands.
- V. Railways, rolling-stock, staff of employés, &c.
- VI. Supplies, probable amount procurable on requisition.

REPORTS.

When the enemy is first discovered a report should usually be sent, and important information should at all times be forwarded at once.

The following are some of the most important points to be remembered by the officer in command of a reconnoitring party in framing and transmitting his reports :—

If verbal, the bearer must be made to repeat it once or twice distinctly before he rides away. If written, it must be legible, concise, and clear, in the style of a telegram, a distinction drawn between what is certain,

and what is supposed or inferred. Reports to the same person should be numbered consecutively; place, date, hour, minute, and signature. The data on which all calculations are based must be given. Names of places and people should be printed. The points of the compass are to be used in descriptions. Ambiguous expressions avoided.

Every officer should provide himself with forms similar to those in general use and corresponding envelopes.* The date should be abbreviated thus: 30. ix. 95. To prevent doubt in naming a night, both days should be given thus: Night, 29/30 Sept.; Night, 30th Sept./1 Oct.

Minutes to be written as in railway time-tables—9.45 a.m. The hour of 12 to be followed by “noon” and “midnight,” written in words.

If the enemy is met the particulars of his force should be given, the time he was seen, and the direction in which he was going.

The authority for a rumour is always to be quoted. Whenever necessary, to make a report clearer, a sketch may be added to it. Place, date, time of despatch, and pace should be written on the cover, and the addressee on receiving it will sign his name and fill in the date, time, and place he is at, and return it to the messenger as a receipt to be by him returned to the writer.

In sending reports, regard must be paid to their importance. As regards pace, X means trot and walk, XX trot the whole way, XXX as fast as possible.

Negative information is often very useful, and should be sent in at stated times.

* Forms, Army Book 153; Envelopes, Army Form C., 398.

EXAMPLE I.

(From R.C.M. Paper.)

A SMALL RECONNOITRING PARTY OF INFANTRY.

(See Plate III.)

“The officer selected to command a small infantry reconnoitring party of three non-commissioned officers and 20 men receives the following orders:—Reconnoitre the road *via* New Farm and the village of Newlands from Tedhampton to Dunn’s Bridge, and ascertain whether the enemy, who has been observed in the direction of Norton, has crossed the River Yale near that point. As officer in command of this party—

“(a.) Describe how you would proceed to carry out the above instructions, and show on the map (Plate III.) the different formations adopted by your party, while on the march.

“(b.) As officer in command of the above party you are requested to send in a reconnaissance report on arriving at Dunn’s Bridge.

(a.) Before starting I should acquaint my party with the object of the work in hand, and warn them that I did not wish to engage the enemy’s infantry, but that I would push back his vedettes, if met with, until they were reinforced. On leaving Tedhampton I should dispose of my party in the following manner:—
A non-commissioned officer and two files 300 yards in front, and a couple of flankers 150 yards on either side. The rest of the party would follow the advanced files at a distance of 300 yards, with the exception of one file which would follow 300 yards in rear.

Placing the smartest N.C. officer in charge of the advanced party, and selecting good men as flankers. To the commander of advanced party I would give special instructions, and if he had not a map I should give him rough copy of my own if I possessed one, with the roads marked red, and the rivers blue.

As I have only a small party I should confine myself generally to the road and the country in the vicinity of it. While in Section I., I should ascend to the top of the Wind Mill on hill 125, and as this point commands an extensive view I should ask for a signaller to be posted on the Wind Mill to communicate with me at Four Tree Hill later on.

In Section I., the bulk of the party would be on the road, right flankers pushed out with a connecting file between them and the road; while in this section the marsh on the west of road would necessitate calling in the left flankers.

Section II.—On arriving at Stone Bridge the right flankers would keep a sharp look-out in a north-westerly direction in rear of copses. The left flankers having discovered the ford, I should hold Stone Bridge on right bank of river with half my party, and send two patrols, each consisting of a N.C. officer and three men, to reconnoitre the copses on each side of the road north of river. As soon as they reported all clear, I should call in my flankers and move rapidly over the bridge and through the copses.

Section III.—On arrival at forked roads south of New Farm I should halt my party while the right and left flankers worked round New Farm. The advanced party would then enter the farm enclosure, and make a prisoner of the owner. Meanwhile I should establish signal communication with the Wind Mill from Four Trees if weather

permitted. Having questioned the owner of New Farm, who can give me no reliable information concerning the enemy, I should send a patrol, consisting of a N.C. officer and five men, to reconnoitre the Western Railway line to ascertain whether it showed any signs of having been tampered with, especially in the cutting west of road. I should direct this patrol to establish communication with me at the level crossing north of Newlands. If the inhabitants were friendly I should leave two signallers at Four Trees, but not otherwise. In any case I should signal to the Wind Mill before proceeding.

Section IV.—Before entering Newlands village with the main body of my party I should await the reports of the right and left flanks and advanced party. On arriving at Newlands I should secure the three outlets, seize the post office, and telegraph office if there was one, make a prisoner of the head man of the place, and order all the inhabitants, if unfriendly, to keep indoors, under pain of being shot, until further orders. Having examined all papers and questioned the head man, and received a report from the left patrol to the effect that the railway line was intact and showed no signs of having been tampered with, I should, if possible, signal to the Wind Mill that so far I had discovered no traces of the enemy, and could obtain no information about him.

Section V.—Taking the head man of Newlands with me as a hostage for the peaceable behaviour of the rest of the inhabitants, if necessary, I should proceed in the formation I set out in, to bridge over railway cutting, where the left patrol would join me. I should now send a N.C. officer and five men to patrol over railway bridge across the river, with orders to rejoin me at cross roads west of Dunn's Bridge by the centre bridge.

Section VI.—I should take up my stand with one N.C.

officer and nine men at cross roads west of Dunn's Bridge, posting a N.C. officer and four men at the Railway Bridge, and a N.C. officer and two men on knoll 83, and a double sentry at the east end of each of the two bridges.

About an hour before dusk I should return with my party to Tedhampton, *via* White's Mill, in the same order in which I went out, only reversed. The formation returning would be that of a rear-guard, whereas, when going out, it was that of an advanced guard.

REPORT. No. 1.

(b.) *From Lieutenant W. R. Smith, Northumberland Fusiliers,
to Brigade-Major 2nd Infantry Brigade, Tedhampton,*

Cross Roads, west of Dunn's Bridge,
June 14th, 1893.

Arrived here 2.30 P.M.

Have established posts at Railway Bridge and on knoll marked 83. (See map, a copy of which you provided me with.)

Have seen nothing of enemy, and discovered no traces of his having crossed the RIVER YALE, nor obtained any information of his approach from inhabitants.

Railway line intact. Discovered no signs of its having been tampered with.

Inhabitants inclined to be friendly.

Shall remain in observation till 7 p.m., and then return to TEDHAMPTON, *via* WHITE'S MILL, unless I receive any further orders.

Time of despatch of this report 2.45 P.M.

(Signed) W. R. SMITH, Lieut.

Northumberland Fusiliers.

Subsequent report on the country handed in by Lieutenant W. R. Smith on his return to Tedhampton, with map:—

“I verified the map, and found it to be substantially correct. Detailed report of the country traversed by myself and party during reconnaissance from Tedhampton to Dunn's Bridge, June 14th, 1893:—

“Section I.—Weather permitting, signal communica-

tion can be established between the Wind Mill on hill 125 east of Tedhampton and the Four Trees due north on top of Tiptree Common.

“Road from Tedhampton to Wind Mill due east metalled. All slopes gentle and practicable for all arms, hedges quickset, fields large, no ditches, trees oak, 1ft. 6in. diameter. Marsh to west of Tedhampton, Thorpunder Road, passable for infantry only with difficulty.

“Section II.—River Yale between Stone Bridge and White’s Mill about 100 yards wide, unfordable; average depth about 7ft. in centre of stream; bottom gravel and rocky, current one and a-half miles per hour; banks firm.

“Ford west of Stone Bridge, 3ft. 6in. deep, bottom stoney, with large boulders of rock unsuitable for carts, water clear. Stone Bridge, width 24ft., elliptical arches, length 130 yards, stone piers 7ft. thick.

“Bridges at White’s Mill same construction as Stone Bridge. Copses, young oak trees 6in. diameter, thick hazel undergrowth.

“Tiptree Common, slopes gentle, open grass land, excellent camping ground.

“Section III.—Good position facing north marked A—A. Right flank protected by unfordable river, covered communication in rear, good lines of retreat, front covered by Western Railway and Newlands village; left flank open, artillery positions commanding knolls 85 and 83 at extremities of northern spurs; country between east and west spurs north of railway flat, cultivated; crops, wheat, barley, and potatoes; soil light, hedges quickset, ditch on each side about 2ft. deep, trees oak, about 1ft. 6in. diameter.

“Strong outpost line extending from Dunn’s Bridge on the east to Danby House on the west; good lateral communication, and ample means of retreat; capable of

being held, by day, with half a battalion furnishing five piquets and four supports.

“Section IV.—New Farm, brick, tiled roofs, defensible.

“Newlands village, houses brick, tiled roofs, streets 18ft. wide, clear space near cross roads in village. Railway embankment north side within 400 yards; strong point for enemy to rally behind; otherwise the village is defensible against infantry.

Section V.—Railway bridge iron, supported on stone piers; double line; centre embankment 14ft. high; cuttings, that on the east 12ft. deep, western cutting 25ft. deep; country to north of railway described above in connection with position.

“Section VI.—North-east spur slope very gentle. Small wood to west of spur, oak trees 1ft. diameter, thick hazel undergrowth; Dunn's Bridge and bridge to south of it similar construction to Stone Bridge. Hamlet of West Lynn consists of a few brick houses with tiled roofs. Remaining two woods and village of Thorpunder I did not reconnoitre, but from enquiries I ascertained that the trees and undergrowth are similar to the small wood, and that with the exception of the main roads there are no paths through them. Thorpunder village, I was told, is of similar construction to Newlands, with a large stone church and a brewery, the latter surrounded by a stone wall. Danby House is, I was told, a large stone mansion with considerable home farm buildings, all stone, with slate roofs. I am inclined to believe this information is reliable, as the man who informed me was the postmaster of Newlands and my hostage at the time, and I led him to suppose I was going to inspect these places with him.

“N.B.—All the roads are metalled, about 24ft. wide.



with low quickset hedges and a ditch on both sides 1ft. 6in. deep, all in excellent repair.

(Signed) "W. R. SMITH, Lieut."

EXAMPLE II.

(From R.C.M. Paper)

A RECONNOITRING PARTY COMPOSED PARTLY OF CAVALRY
AND PARTLY OF INFANTRY.

(See Plate IV.)

The commander of a force encamped about Purley (see map) receives intelligence that the enemy's scouts have been seen about Stratford, advancing south.

"At 6 a.m. the following morning you are sent out to reconnoitre, in command of half a squadron of cavalry and half a company of infantry. Describe your plan of operations within the limits of the map, and explain how you would divide your force, and how the different fractions should carry out their duties."

Assuming that the half squadron consists of two officers besides myself and 48 sabres, with four N.C. officers, and the half company two officers and 50 men with four N.C. officers.

Proposed plan of operations and division of force.

On arrival at bridge over Swindon river, which is six miles from camp, I should leave the half company of infantry to secure my retreat over the Swindon river, in case I am forced to retire before superior numbers of the enemy. I should then divide the cavalry as follows:

Advanced Party consisting of one officer, one N.C. officer, and 10 troopers.

Main Body under myself, with one N.C. officer and 22 troopers.

Right Patrol, one N.C. officer and eight troopers.

Left Patrol, one N.C. officer and eight troopers.

The advanced party, followed within supporting distance, say 1,000 yards at first, by the main body, will be ordered to proceed up the central road leading through "The Firs," village of Barton, and hamlet marked B.

The right patrol will reconnoitre the country on both sides of the road leading to Elmhurst, and thence through Periker Wood to the hamlet marked A.

The left patrol will reconnoitre the country on both sides of the road leading over hill marked 250, thence through Brook Wood, and then in a north-west direction to Newton Wood. Lateral communications between advanced party and right and left patrols will be established.

First.—Along the line Elmhurst, "The Firs," and east edge of Brook Wood.

Secondly.—Along the road leading west and east through Barton village and Periker Wood.

Thirdly.—Along the general line hamlet of A, hamlet of B, and north-east edge of Newton Wood.

Lateral communications established, a report would be sent back to officer commanding party, and his orders to move forward awaited.

The different fractions as above detailed would carry out their duties somewhat as follows :—

The infantry, as soon as lateral communication is established along the line Elmhurst, "The Firs," and Brook Wood, would cross to the north side of bridge and secure the junction of the roads north-east of copse, and also the road leading west. The copse affords good cover for infantry, and commands the roads. (For distribution of infantry *vide* map.)

The advanced party would push on and reconnoitre briskly until it reached within a couple of hundred yards of the edge of the plateau; it would then feel its way cautiously before exposing its leading file to view on the crest-line of plateau. One man might dismount when near the top, giving his horse to his comrade to hold, and creep up and look over the plateau before giving the signal that all is clear. (Advanced party formation at "The Firs." *Vide* map.) The main body would follow advanced party, keeping within supporting distance, say half-a-mile, and ready to afford assistance in any required direction.

The right patrol would search Elmhurst Wood with its right flankers, and work round both flanks of Elmhurst village before entering it. (For formation *vide* map.) All the roads in Periker Wood would be secured, and the party move through it at a trot to cross roads.

The left patrol would send two men up to the top of hill marked 250; it would also send its flankers round base of hill before advancing over it. It would halt before entering Brook Wood, and proceed to pass through it as shown on the map.

The advanced party would use great precautions before entering Barton, advanced scouts and flankers carefully preceding rest of party, which would be halted outside till all reported clear.

Newton Wood and hamlets of B and A would be approached by the patrols in similar manner to Elmhurst, as shown on the map.

The main body would eventually take up the position as shown on map, while Newton Wood, hamlet B and hamlet A are being reconnoitred.

Communication with the infantry near the bridge would be kept up either by signallers or mounted order-

lies. A connecting post, consisting of two troopers would be left at forked roads west of "The Firs."

Should the enemy's cavalry in superior force be met with and the patrols driven in, the main body would support them, and every effort should be made to obtain information regarding the enemy's strength. If the whole party is forced to fall back, word would be at once sent to the commander of the infantry to be in readiness to cover the withdrawal of the cavalry over the river.

Look-out posts would be temporarily established, *en route*, on knoll 250 to east of copse, and on hill 250 to west of copse; the owner of farmhouse marked D questioned, also the owner of "The Firs." The inhabitants of Elmhurst, Barton, and hamlets B and A would also be questioned, with a view to obtaining all possible information. As the slopes are cultivated, movements up and down them would be more or less confined to the roads.

REPORT.

From Captain H. Jones, commanding reconnaissance detachments 9th Hussars and Royal Fusiliers, to Assistant Adjutant General 3rd Division 1st Army Corps, Purley. [No. 2.]

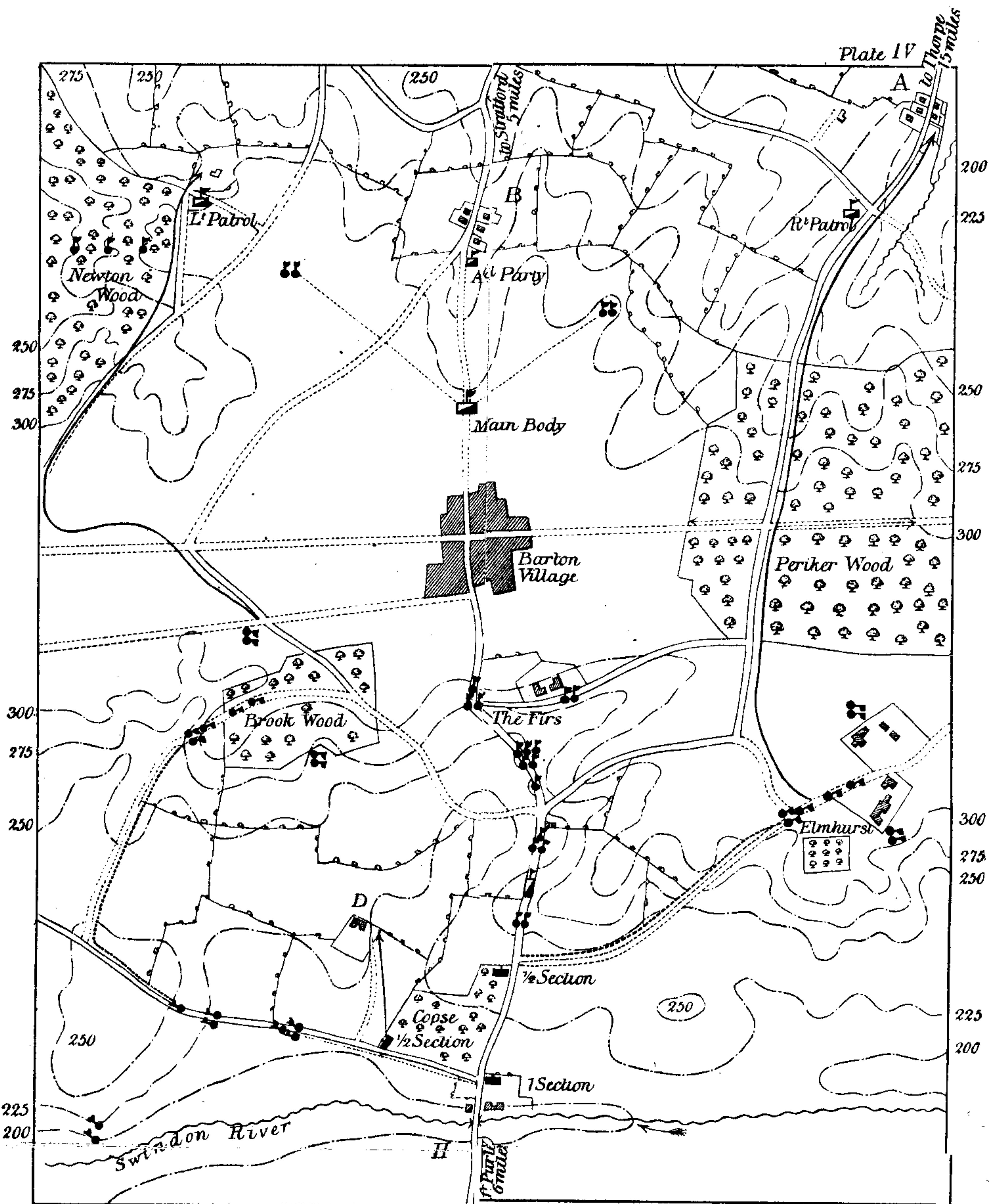
BARTON, 7 P.M., June 15th, 1893.

Arrived here at 6 p.m., where I have established my head-quarters with the cavalry for the night. Have established posts at A, B, and N.E. corner of NEWTON WOOD (see map.) Have seen nothing of the enemy, and can obtain no reliable information concerning him from the inhabitants. Have left detachment Fusiliers, under Lieut. L. Williams at bridge marked II, holding copse on north side to protect my retreat. Shall leave connecting post here at cross roads in centre of village, and continue my reconnaissance towards STRAFFORD and THORPE shortly after daybreak to-morrow.

Sketch and report of country passed through enclosed.

(Signed) H. JONES, Capt.
9th Hussars.

N.B.—The sketch accompanying report would be attached, with remarks about the country neatly written on the border, or on a separate sheet of paper.



RECONNOITRING PARTY (CAVALRY AND INFANTRY).

CHAPTER III.

SPACES AND TIME.

UNDER the heading of Spaces and Time we shall see how to compute the extent of ground which any force will require when deployed and when on the march, having regard to the different formations such a force may assume: we shall also deal with questions of time—not only the time occupied in passing from one point to another, but the time necessary to effect changes in the formation of troops of either or of all the three arms. “As time and distance,” says Lord Wolseley, “are the two elements upon which all military movements hinge, officers cannot accustom themselves too much to everyday calculations regarding them.”

There are different formulæ for cavalry, artillery, and infantry, and for the three arms combined.

We will deal first with the cavalry arm, and calculate the space occupied by a body of cavalry in different formations, including the spaces allowed between units, and the ground it covers per minute when walking or trotting.

Cavalry.

For purposes of calculation, cavalry in line occupy the same lateral space as they do depth in fours (vide Plate V.) plus eight yards between squadrons, and 16 yards between regiments either in line, or in column of route on the march; these distances may be increased at discretion.

A horse measures eight feet from nose to croup, and is allowed a frontage of one yard. In line, the rear rank is a horse's length from the front rank. Cavalry in line occupy as many yards as there are horses in the front rank; therefore there are two sabres to every yard of frontage. Thus 24 yards of cavalry in line = 24 front rank and 24 rear rank, or 48 sabres. Twenty-four yards of cavalry in fours (eight abreast with four feet between each rank) is also 48 sabres (vide Plate V.)

Cavalry in sections, *i.e.*, four abreast, occupy double the depth they do in fours. Cavalry in half-sections, *i.e.*, two abreast, occupy double the depth they do in sections, and four times the depth they do in fours.

Thus a half-squadron of 48 sabres would occupy :—

In line, 24 yards of front, or one yard per file.

In fours, 24 yards of depth, or one yard per file.

In sections, 48 yards of depth, or one yard per sabre.

In half-sections, 96 yards of depth, or two yards per sabre.

The usual formation of cavalry on the line of march is half-sections, or sections according to the width of the road.

The squadron is the tactical unit of cavalry, and consists of three or four troops.

INTERVALS AND DISTANCES.

“Between squadrons in line eight yards interval is allowed; between regiments or between brigades 16 yards is allowed.

“On the line of march the distance between squadrons in fours is eight yards; between squadrons in sections or half-sections there are no intervals; between regiments and between brigades 16 yards. When troops of other

arms form line, or march in column of route with cavalry, the distance to be kept from the cavalry is 25 yards."

PACE:

"At a walk, four miles an hour, or 117 yards per minute.

"At a trot, nine miles an hour, or 264 yards per minute.

"Trot and walk, five miles an hour, or 146 yards per minute.

"Gallop, 15 miles an hour." *

OPENING OUT.

When fully closed up allow 10 per cent. when troops are executing a march, subject to the moral and physical condition of the troops, climate, weather, gradients, state of the roads, &c.

Infantry.

To find the frontage occupied by infantry in line reckon that each man in the front rank occupies 27 inches; and in addition allow for two guides per company, and for two officers and a sergeant for the colour party (if present). Thus a battalion of eight companies of 100 men each, in line, requires 27 inches for every front-rank man + (19×27) for guides and colour party = 314 yards.

A battalion in fours occupies the same depth as it does frontage in line. The Drill Book, 1896, however, allots 350 yards for a battalion 800 strong marching in fours, exclusive of any allowance for opening out (presumably this includes the band and two ammunition-carts and two mules).

* Cavalry Drill, 1896.

INTERVALS AND DISTANCES.

Between battalions in line, or in columns of fours on the march, 25 yards.

Between infantry and the other arms, 25 yards.

PACE.

Two and three-quarter miles an hour, allowing for a halt of five minutes in each hour ; $2\frac{3}{4}$ miles in 55 minutes = 88 yards a minute.

OPENING OUT.

When fully closed up allow 20 per cent. when troops are executing a march, subject to the moral and physical condition of the troops, climate, weather, gradients, state of the roads, &c. which are *ever-varying factors*.

Artillery.

Each gun or wagon with six horses occupies on the road a depth or length of 15 yards, to which must be added four yards distance between each gun and wagon.

A battery consists of six guns and six wagons.

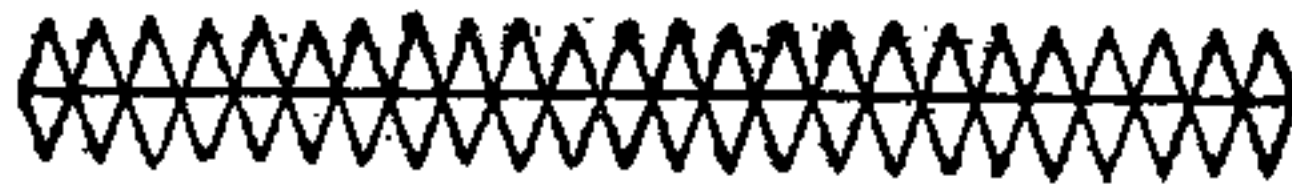
INTERVALS AND DISTANCES.

The Field Artillery Drill, 1896, says that for *practical* purposes the depth of a battery of horse artillery with detachments left, or a field battery, is obtained by allowing 20 yards for each carriage ; horse artillery with detachments front or rear require an extra 10 yards for each detachment ; if the detachments are in file four yards must be allowed for every two horses in the detachment.

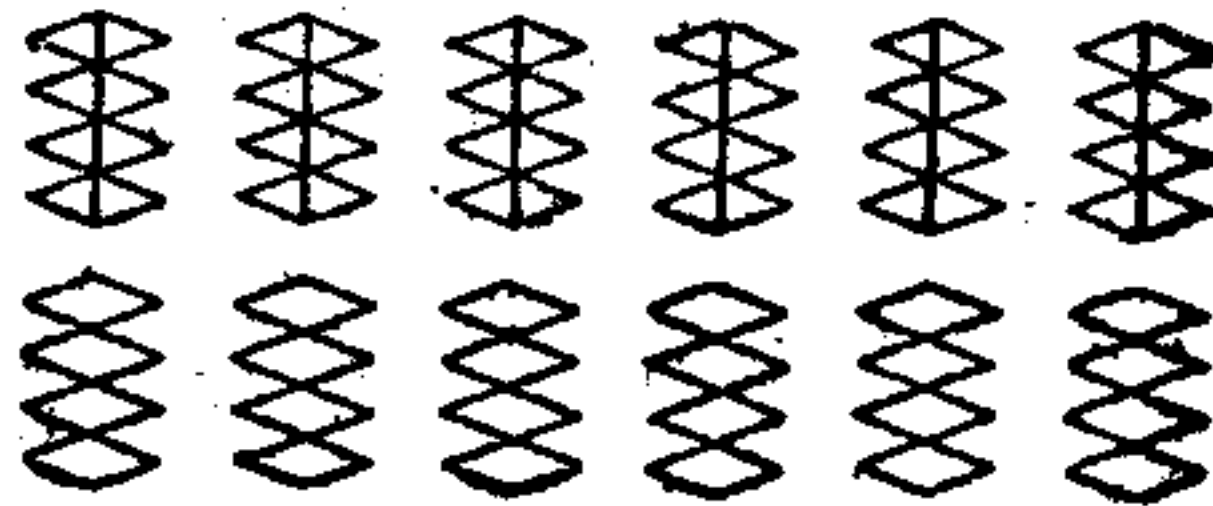
Thus the depth of a H. A. Battery with detachments left, or a Field Battery, is 240 yards.*

* Strictly it is 224 yards.

PLATE V.
SPACES OCCUPIED BY TROOPS IN VARIOUS FORMATIONS.

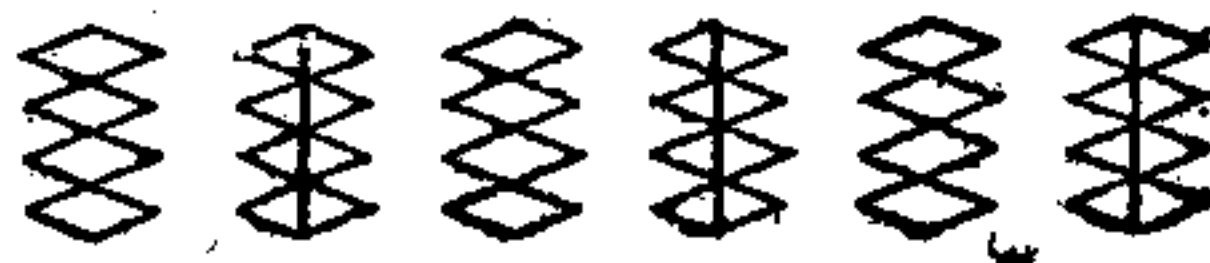


48 Sabres in Line, 24 Yards.



8 4 8 4 8 4 8 4 8 4 8

48 Sabres in Fours, 24 Yards.



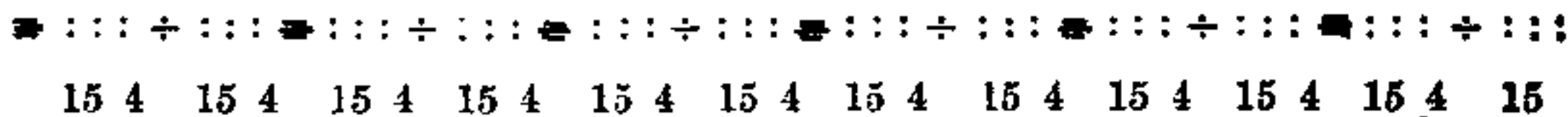
24 Sabres in Sections, 24 Yards.



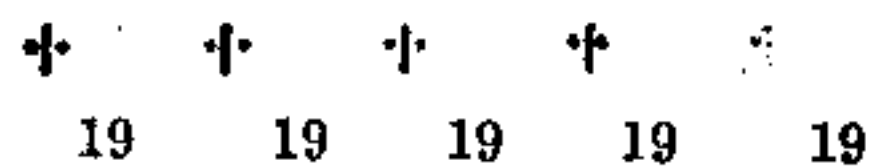
12 Sabres in Half Sections, 24 Yards.



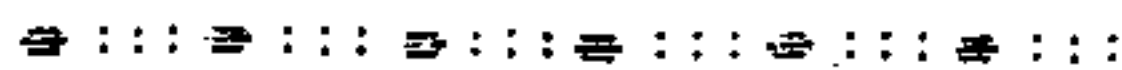
A Battalion on Parade, 800 Rank and File, in Line, 314 Yards.



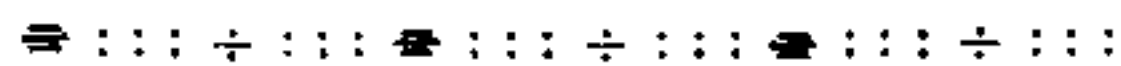
Battery in Column of Route, 224 Yards.



Battery in Line for Action, 100 Yards.



Battery in Column of Sub-divisions, 110 Yards



Battery in Column of Sections, 110 Yards.

A Horse Artillery Battery with detachments front or rear, 300 yards.

A Horse Artillery Battery with detachments in files, 360 yards.

The interval between guns in action in line is 19 yards (and should always be obtained if possible). A battery in action at half-intervals is said to be twice as vulnerable as when it is at full intervals.

The Field Artillery Drill Book, 1896, says:—"For practical purposes the frontage of a battery in line may be taken to be 100 yards."

The intervals between batteries and between brigade divisions, and also between the other arms, is 25 yards.

In columns of route between brigade divisions and larger bodies the distance is 25 yards, and between batteries four yards. These distances may be increased if necessary.

PACE.

Horse artillery moves at the same pace as cavalry.

Field artillery marches at the rate of four miles an hour including halts.*

Walk and trot for horse and field artillery five miles an hour.

(From *Infantry Drill Book*, 1896.)

Data for forming an Estimate of the Enemy's Numbers when on the March.

A given point is passed in one minute by about 260 infantry in fours.

(This is calculated at the rate of 120 paces or 100 yards per minute, and is, therefore, only applicable to small bodies of troops.)

In all other calculations for infantry marching alone

* Field Artillery Drill, 1896.

or with other troops, the pace is taken as three miles an hour, or 88 yards per minute, exclusive of halts.

Thus we are told that 88 cavalry in sections pass a point in one minute if in rear of infantry, and cavalry in sections, we have seen, occupy one yard per sabre in depth.

N.B.—The data for estimating the numbers of cavalry and artillery should be taken from the Cavalry and Artillery Drill Books, and not from the Infantry.

A 2-horse vehicle requires 10 yards of road space.

A 4-horse „ 15 „

A 6-horse „ 19 „

Including, in each case, four yards distance.

A single horse, mule, or pack animal requires four yards.

An infantry machine-gun section occupies 30 yards in column of route, and a cavalry machine-gun section 50 yards; this includes the intervals between the machine-guns and the other arms. A machine-gun section is two guns.

Mixed Troops.

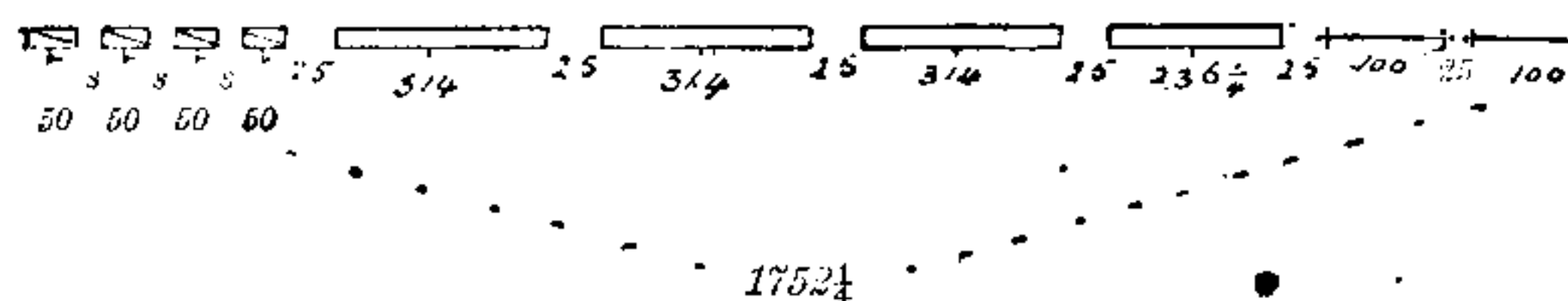
The rate of marching of mixed troops, *i.e.*, cavalry and infantry, or of all three arms in the same column, is regulated by the pace of the infantry, the slowest arm, which is $2\frac{3}{4}$ miles an hour, including a halt of five minutes in each hour; this is at the rate of 88 yards a minute while moving.

Example I.—Calculate the space occupied in line by the following troops:—

One regiment of cavalry, 400 sabres.

Four battalions of infantry (three 800 strong in eight companies, and one 600 strong in six companies.

Two batteries of field artillery.

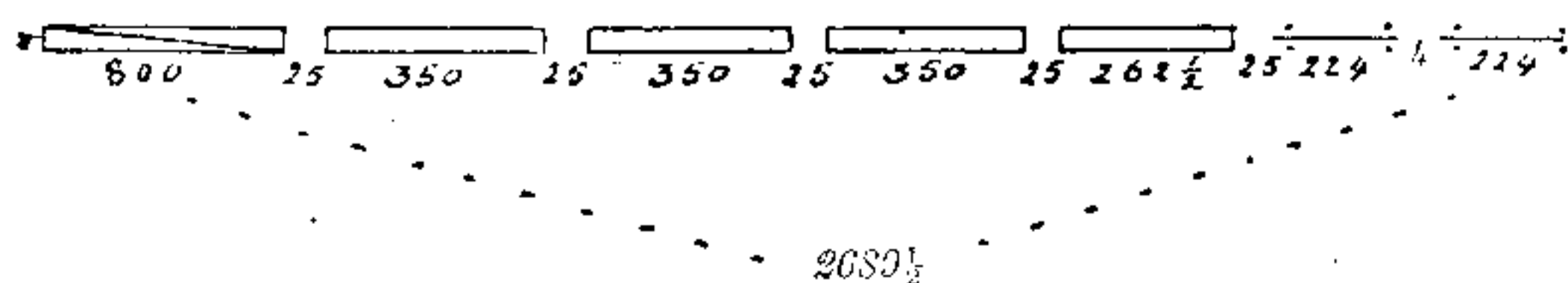


Example II.—Calculate the space occupied by the same force in column of route, on the data that a battalion in fours, 800 strong, occupies 350 yards of road :—

The cavalry in half sections.

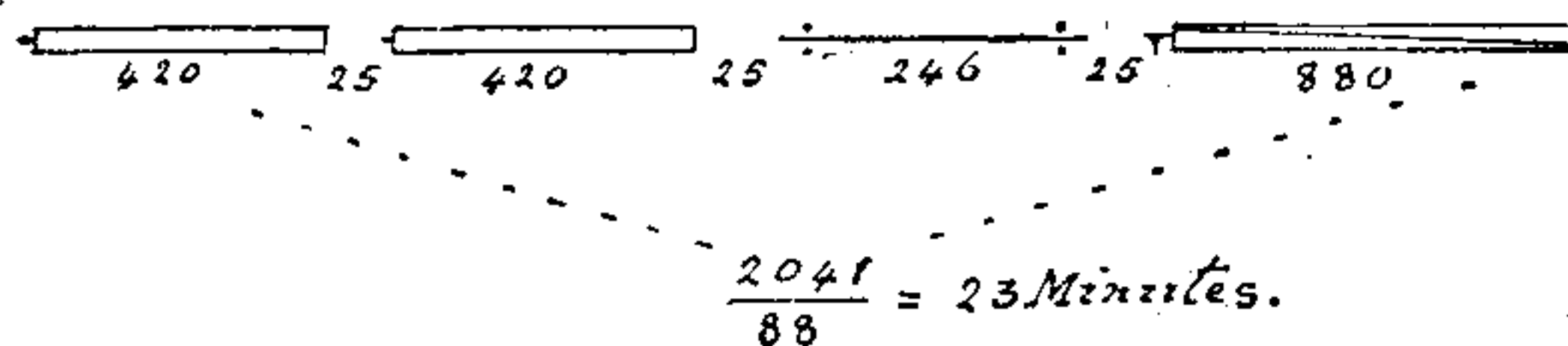
The infantry in fours.

The artillery in column of route.



Example III.—A force passes a point on a road in the following order :—Two battalions, 800 each in fours ; a battery of field artillery in column of route ; a regiment of cavalry 400 strong in half sections. How long will it be before the last trooper has passed ? The pace is estimated at three miles an hour, and the allowance for opening out at $\frac{1}{5}$ for the infantry and $\frac{1}{10}$ for the cavalry and artillery.

First draw out the force in the order in which it is given, then calculate the number of yards it occupies, including the allowance for opening out, and divide the result by 88, which is the number of yards covered per minute.

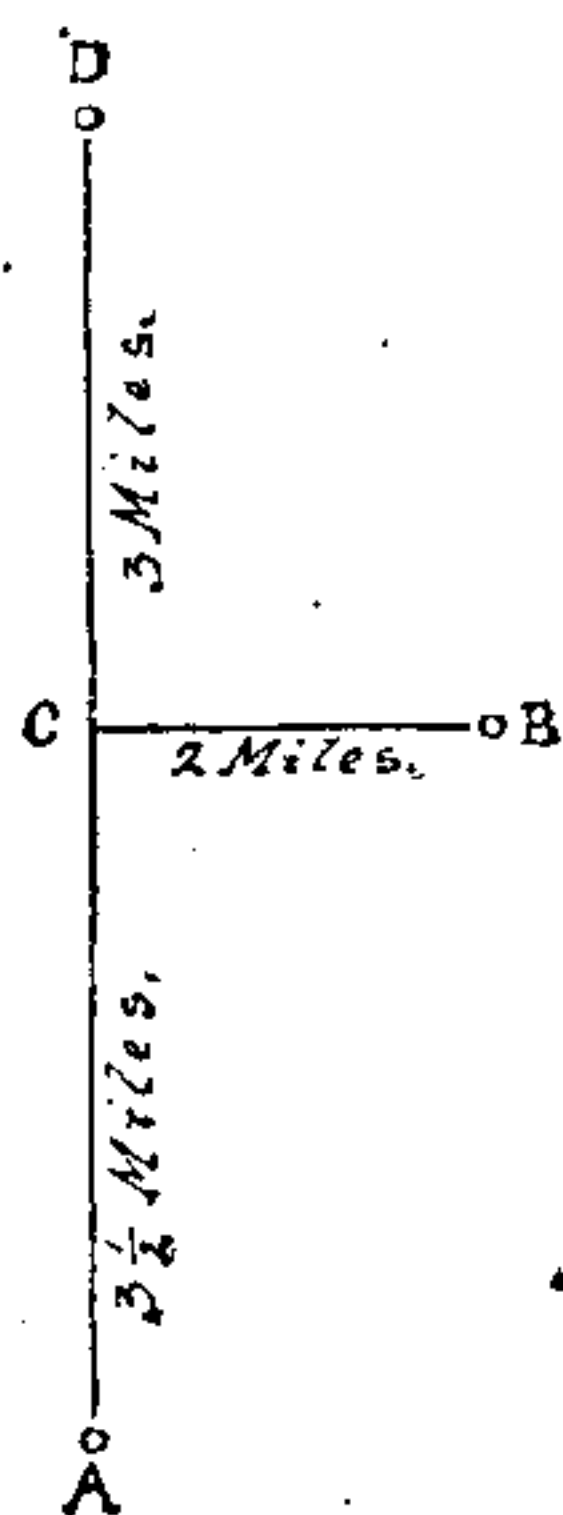


To calculate the number of troops on the march it is necessary to note:—

- (i.) The arm.
- (ii.) Their formation.
- (iii.) The time they take to pass an object.
- (iv.) Estimate the pace they are moving at.
- (v.) The allowance to be made for opening out.*

Example IV.—Let us suppose that a thoroughly exhausted body of prisoners marching in fours is observed to take seven minutes to pass a tree, the pace is sixty yards a minute, and the allowance for opening out is one-half— $60 \times 7 = 420 - 210 = 210$ yards of infantry in fours = 560 men.†

Example V.—A regiment of cavalry 400 strong and a battery of horse artillery is quartered at A (*vide* diagram) and a battalion of infantry 800 strong is quartered at B. What time should these detachments leave their respective quarters for the united forces to march in together and be assembled at D by 10 a.m.; the infantry to join the cavalry and artillery column at C and march in rear of it to D?



Normal formations, normal pace, usual allowance for opening out, and for halts.

Here the infantry have to march five miles for the head of the battalion to

* Calculations based on the supposition that a certain fixed number of troops pass a point in a minute are practically worthless.

† In accordance with the data given in the Drill Book, the number of infantry may be calculated as 260 per minute, but for all practical purposes the pace would have to be observed on the spot. It varies with the length of the march, state of roads, straggling, &c.

arrive at D. Marching at the rate of 88 yards a minute this will take one hour and 40 minutes + 5 minutes for a halt and + 5 minutes for length of column, arrived at thus, 350 yards + 70 for opening out = $\frac{420}{88} = 5$ minutes. Total time one hour and 50 minutes, \therefore the infantry must leave B at 8.10. a.m

The head of the infantry column will reach C at 8.50 a.m. The cavalry and artillery must clear the point C by 8.50 a.m. A to C is $3\frac{1}{2}$ miles. At five miles an hour this will take 42 minutes + length of column allowing 10 per cent. for opening out $\frac{330 \times 25}{880} = \frac{1235}{146} = 8$ minutes, $42 + 8 = 50$ minutes.

\therefore Cavalry must leave at 8 a.m.

Example VI.—A body of cavalry in half sections winding through a mountainous district takes 25 minutes to pass a bend in the road trotting at the rate of 8 miles an hour. Required the number of sabres.*

Eight miles an hour, = 235 yards per minute ;
 $235 \times 25 = 5,875$ yards of cavalry in half sections.
 Cavalry in half sections occupy two yards per sabre,
 thus $\frac{5,875}{2} = 2,937\frac{1}{2}$ sabres or about seven regiments of 400 each ; there would be six intervals of 16 yards each to deduct, and $5,875 - 96 = 5,779$ yards of men in half sections. The answer is therefore expressed as $\frac{5779}{2} = 2889 - 288$ for opening out = 2601 sabres or six

* This question might be roughly answered thus :—117 sabres in half sections pass at 8 miles an hour in one minute $\therefore 117 \times 25 = 2925 - 292$ for opening out = 2633 sabres. Deduct 6 intervals of 16 yards each = 96 yards = 48 sabres = $2633 - 48 = 2585$ sabres = six regiments of 400 sabres each and two squadrons 92 each.

regiments of 400 sabres each, and two squadrons of 100 each.

Example VII.—A division, consisting of seven battalions of infantry (each 800 strong in eight companies), one regiment of cavalry, three batteries of artillery, one company of engineers (100 strong) is in retreat; the rear-guard (composed of two battalions of infantry, one squadron of cavalry, one battery of artillery, half company of engineers) occupies a position to hold the enemy in check, while the main body crosses a river two miles in rear by a bridge 300 feet long. How long must the rear-guard hold its ground to enable the remainder of the division to take up a position 1,000 yards from the further bank of the river, across the road leading from the bridge? It is supposed that the cavalry of the main body is moving independently to watch a ford about a mile above the bridge. The infantry is marching in quarter column, the artillery in column of route, and there is no advanced guard; the head of the retreating column is within a mile of the bridge when the attack on the rear-guard position commences; the bridge is not wide enough to admit of the infantry marching over it in sections.

Here we shall find, after allowing for the rear-guard and the cavalry, that the retreating column consists of five battalions of infantry (800 strong each), two batteries of artillery, and a half company of engineers (100 men). A delay at the bridge will be caused while the infantry get from quarter column into fours. The force can deploy on its new ground half to right and half to left, and the rule is that, in such a case, the time occupied in deploying will equal the length of the column + half its length. This rough rule is generally accepted, and it allows a margin for unforeseen checks.

As the infantry will have to get into fours to cross the

bridge, allow 350 yards for each battalion in this formation when calculating the length of the column.

$$\text{Thus } 1,760 + 100 + 1,000 + 2,423 + \frac{2423}{2} = 6,494$$

yards. To traverse this distance at the rate of three miles an hour would take 73 minutes; thus it appears that the rear-guard must hold out for about an hour and a quarter. (No allowance is made for opening out.)

Example IX.—A battalion of infantry 800 strong, marching in fours, is ordered to deploy to the right of the road; as soon as the deployment is completed the march is resumed. What delay in the march will the incident have caused?

The delay will equal the length of the column plus its frontage when deployed $= 350 + 70$ for opening out $+ 314 = 734$ yards at 88 yards per minute $= \frac{734}{88} = 8.24$ minutes.

Example X.—If 500 troopers march along a road at the rate of five miles an hour, and take $4\frac{1}{3}$ minutes to pass a given point, what formation are they in?

Four miles an hour $= 117$ yards per minute.

$$117 \times 4\frac{1}{3} = 507 \text{ yards.}$$

Cavalry in sections occupy one yard per sabre.

\therefore 500 troopers must be in sections to occupy about 507 yards.

Example XI.—You are in charge of a convoy consisting of 50 two-horse wagons, moving at the rate of three miles an hour. You come to a temporary bridge over a river which is 100 yards long, and you are directed to increase your distances so as to allow only three wagons to be on the bridge at a time. What delay in the march of the convoy will be caused at the bridge?

(N.B.—No allowance need be made for the escort.)

Two-horse vehicles are allowed 10 yards each ; this includes four yards distance.

The delay will be the difference between the length of the wagons on the road and their length as they cross the bridge.

$$50 \times 6 + 49 \times 4 = 496 \text{ yards on the road.}$$

For a continuous line of wagons to pass over the bridge, and only three to be on the bridge at a time, the distances will have to be increased to 27 yards ; the difference will be $23 \times 49 = 1127$ yards.

At three miles an hour the delay will be about 13 minutes.

N.B.—If an advanced guard is delayed, and waits till it is reinforced by the main body, and then resumes its march, the delay to the main column will be while the advanced guard is regaining its proper distance.

Example XII.—A force composed of a battalion 800 strong and a battery of field artillery is quartered at Milowitz (see Map A.), and a regiment of cavalry 600 strong is quartered at Sucha. What time must these troops leave their respective quarters for the united forces to be assembled in the open space in the centre of Dub at ten a.m.? The cavalry will follow the infantry and artillery column into Dub by the Stracow-Dub Road, joining the column at the cross-roads west of Dub. Normal formations, pace, allowance for opening out, &c., to be observed.*

Answer.—From Sucha to Dub is $2\frac{3}{4}$ miles = 4840 yards.

$$4840 + 1200 + 120 = \frac{6160}{117} = 53 \text{ minutes about.}$$

* The formations are assumed to be infantry, fours ; artillery, column of route ; cavalry, half sections. Pace—cavalry 4 miles an hour ; infantry and artillery, 3 miles an hour. Allowance for opening out, $\frac{1}{5}$ for infantry, $\frac{1}{10}$ for cavalry and artillery.

The cavalry must leave Sucha at 9.7 a.m.

Leaving at 9.7 a.m., the head of the cavalry column will arrive at cross-roads west of Dub, a distance of 4620 yards, in about 40 minutes, say 9.47 a.m.

In order that the whole force may assemble at Dub by 10 a.m., the infantry and artillery column must clear the cross-roads not later than 9.45. From Milowitz to cross-roads outside Dub is 4320 yards. $4320 + 350 + 70 + 25 + 224 + 22 = 5011$ yards. $\frac{5011}{88} = 57$ minutes \therefore in order to clear the cross-road by 9.45 the infantry and artillery must leave Milowitz at 8.45 about.

Answer. — Cavalry will leave Sucha at 9.7 a.m., Infantry and artillery will leave Milowitz at 8.45 a.m.

To calculate the time it would take two bodies of troops marching from opposite directions to meet, you must add together the pace they are respectively marching at. Thus, if one body was infantry, marching at the rate of three miles an hour, and the other cavalry, marching at the rate of five miles an hour, the distance between them would be covered at the rate of eight miles an hour (exclusive of halts).

CHAPTER IV.

ORDERS.

COMMANDERS must cultivate the power of promulgating their orders in such a way that their subordinates may gain a sufficient insight into the whole drift of their scheme. Commanders of smaller bodies must be prompt in reading the signs of movements in progress in conjunction with orders received. That commander is of little worth, who, at a critical juncture, awaits orders from a superior. An order that requires to be explained is a bad order; but a subordinate who cannot understand the exact meaning of an order should do everything in his power to ascertain the spirit of it. Having done this it is not always necessary or expedient that the order should be obeyed to the letter.

An order does not contemplate the carrying out of anything which is not foreseen at the time it is issued, and circumstances may arise which will render the execution of an order undesirable, and contrary to its spirit and intention. Under these circumstances the responsibility rests with whoever carries it out.

“ ‘ It may frequently happen that an order may be given to an officer which, from circumstances not known to the person who gave it at the time he issued it, would be impossible to execute, or the difficulty or risk of the execution of it would be so great as to amount to a moral

impossibility.'"—Duke of Wellington's G. O., November 11, 1803.

"While an order should be implicitly obeyed, still circumstances may change and conditions may widely vary from those known or even from those that presented themselves at the time orders were issued. In such cases the officer receiving orders, guided by the object that he knows his chief has in view, must act on his own responsibility."—Memorandum, Admiral Tryon, Malta, 1893.

Written orders are always preferable to verbal orders, but in action the latter must be promptly obeyed. It is even considered desirable that the orders given to battery commanders in action by the commander of a brigade division (three batteries) should be conveyed in writing through the adjutant; and an orderly is detailed from each battery whose duty it is to carry orders to his battery.

Carrying and delivering verbal orders should be constantly practised, and all ranks, especially in the mounted branches, should be carefully taught how to find their way with the aid of a map over any sort of country.

Officers conveying orders should invariably pull up their horses and walk at a short distance from the officer commanding the troops in the immediate vicinity, and convey them in a deliberate and uniformly respectful manner, no matter what rank the recipient may hold. Orders should be quickly carried, but quietly delivered, or they are liable to attract unnecessary attention. There is no need to go into details regarding the framing of orders; they should be clear, concise, and complete.

Orders are of two kinds:—

- (i.) Manœuvre orders, relating to the march, and disposition of troops prior to or during an engagement.

- (ii.) Daily routine orders, and Departmental orders.

We have only to consider the former.

They are issued through the following channels :—

- (i.) Head-quarter army orders.
- (ii.) Army corps orders.
- (iii.) Divisional orders.
- (iv.) Brigade orders.
- (v.) Regimental and battery orders.
- (vi.) Detachment orders.
- (vii.) Company orders and their equivalents with the other arms.

Army orders, both for the march and for field-days or battles, should rarely exceed a page of foolscap (when copied by a clerk); division and brigade orders should be shorter, all unnecessary detail being omitted, and nothing inserted that ought properly to be left to the judgment of executive subordinates, who should not be hampered, but allowed to act on their own responsibility as occasion arises.

All orders in the field should be modelled on the same pattern. For instance, a corps commander, having received his instructions, explains what he intends to do and gives his orders to his divisional commanders, leaving the mode of carrying them out to his generals, who give their orders to their brigadiers; the brigadiers issue orders to the officers commanding the battalions composing their brigades, and the battalion commanders to their company officers; the company commanders to their half-company or section commanders.

When companies told off to the first line are committed to the attack on a position, the only way a battalion commander in action can convey any further orders is by means of reinforcements.

All written orders, like reports, should be numbered, place, date, and time of issue stated, the name and rank of the person from whom they emanate given, and signed by the officer who is responsible for their issue.

Orders relating to a march would be subdivided somewhat as follows:—

- (i.) What it is considered desirable should be known about—
 - (a) The enemy.
 - (b) The movements of other troops acting in concert.
 - (c) The general idea, and object of the march.
 - (d) The detail of troops should be given under their respective headings in the margin.
- (ii.) Orders regarding advanced, rear, and flank guards. Stating the time the main guard is to move off, and leaving all details as to when the van-guard troops, &c., are to start to the commander of the advanced guard.
- (iii.) Orders for the main columns should include the detail of the troops in their order of march stated in the margin, the time the columns are to march off, and the distance to be kept between them and the advanced guards.
- (iv.) Orders for the first line of trains (all trains belonging to the troops composing the column).
- (v.) Orders for the second line of trains (corps ammunition reserves, R.E. field packs and bakery columns).

- (vi.) Orders as to communicating and connecting arrangements.
- (vii.) Orders as to halts, encampments, bivouacs, &c.
- (viii.) Place of commander on the line of march.
- (ix.) Orders regarding the transmission of reports to headquarters.

A march commences from the time the head of the main column moves off.

If the commander of a column of troops is ordered to march at 7 a.m., it implies that his main body is to move off at 7 a.m. He would issue his own orders to his advanced cavalry if within reach, and to his advanced guard commander, who would make his own arrangements as to the distribution of the troops composing the advanced guard and the time the successive portions are to march.

Orders for the defence of a position would be divided under the following general headings:—

- (i.) Orders to the Engineers regarding the construction of field works, redoubts, entrenchments, obstacles, and regarding demolitions.
- (ii.) Orders to the advanced cavalry outposts, and screening cavalry.
- (iii.) Orders for the outposts.
- (iv.) Orders to the artillery.
- (v.) Orders concerning advanced posts.
- (vi.) Orders regarding protection of flanks.
- (vii.) Orders to commanders of sections of defence in the first line.
- (viii.) Orders for general distribution of troops in second line.
- (ix.) Orders for disposal of troops in third line or general reserve.
- (x.) Orders about counter attacks.

- (xi.) Orders regarding rallying positions.
- (xii.) Ammunition.
- (xiii.) Field hospitals and general hospitals.
- (xiv.) Baggage.
- (xv.) Commissariat, bakery columns, &c.
- (xvi.) Transmission of orders.

Orders for a retreat will be issued confidentially to those charged with carrying it out when the occasion arises. Orders for an organised pursuit will be issued in like manner.

The Attack.

During the final reconnaissance prior to the attack on a position, the main bodies of the troops will close up from columns of route, and will be massed in convenient places beyond the range of the enemy's artillery. When the commander has decided on his plan of attack, he will order the troops to be disposed in greater strength opposite the points where he intends to drive the attack home, and in lesser strength opposite those portions of the enemy's line where it is intended merely to hold him to his ground. Every precaution should be taken to try and conceal this preliminary distribution of troops from the enemy.

Orders for the Attack on a Position.

- (i.) What is known of the enemy's positions and the ground in the vicinity of them, and the general idea and plan of the attack.
- (ii.) To the cavalry.
- (iii.) To the advanced troops.
- (iv.) To the artillery.
- (v.) The part in the attack allotted to the different corps, divisions, or brigades, according to the size of the force engaged, with their allotted

points of attack, clearly indicating what troops are intended to demonstrate, attack, or assault respectively.

(vi.) How counter attacks are to be dealt with.

(vii.) The exact places where it is intended to drive the attack home.

(viii.) Orders to the third line or general reserve.

(ix.) The place of the commander-in-chief or his representative.

(x.) The transmission of reports.

• The general idea should be clearly explained to the commanders of each of the three arms, and transmitted through them to their subordinate commanders. When once his battalion has been committed to the attack, the only means the officer commanding has of giving orders to the troops in front is through the reinforcements.

Special orders will be given regarding the supply of ammunition, the positions to be taken up by the ammunition parks, field hospitals.

Special instructions will be given to the Engineers, and conveyed through their own commanders, who will generally be consulted by the general commanding, and directed to carry out any engineering operations decided on. "The duties of Engineers on the march, or line of communication are: The making and repairs of roads and of bridges, the removal of obstacles, construction of railways and telegraphs, of piers and landing stages, &c."

CHAPTER V.

MARCHES.

MARCHES may be conveniently divided under the following six headings:—

1. Timed Marches.
2. The Order of March.
3. Rules as to Halts.
4. The Use of several Parallel Roads.
5. Night Marches.
6. Flank Marches.

Timed Marches.

The object of “Timed” Marches is to get troops to the right place, at the right time, in good condition. To ensure this the roads must be examined and the country reconnoitred; for calculations of time depending on fixed rules are misleading. The effect on a country generally, and especially on roads, rivers, streams, and mountain paths of severe storms, heavy rain, continued drought, frost, or snow, must always be taken into consideration; but, above all, the probabilities of obstruction and resistance likely to be met with must be carefully weighed, and an ample margin provided for.

In 1877 the principal roads in Bulgaria were in good condition at the beginning of the campaign, but later on they were much cut up by the passage of heavy artillery and transport trains. The country roads connecting villages were passable during the summer, but when the autumn rains came on in September, they soon became quite impassable.

General Gourko, in his famous reconnaissance, July 12th to 19th, 1877, notwithstanding his carefully-planned and skilfully-executed march over the Balkans, underrated the resistance he was likely to meet with from the Turks on the southern side, and arrived too late by one day for the attack on the Shipka Pass, in which he had planned to take a part on the 17th July, in conjunction with a force attacking from the north side. This is the most recent example of over-confidence, and it resulted in two completely isolated and unsuccessful attempts to capture the pass within thirty-six hours. Although Gourko was able to push forward with his cavalry, his infantry was worn out and completely exhausted, and indeed, it seems difficult to understand how any other state of things could have been anticipated.

General Gourko took with him only pack-animals, carrying five days' rations, and three days' forage, but managed to live almost entirely on the country as soon as he got over the mountains.

The first day's march was 18 miles, the next day Gourko marched 27 miles, and after a march of 9 miles he secured the southern outlet of the Hainkioi Pass by 10 o'clock a.m., surprising and overpowering the Turkish garrison. When the difficulties of the road are considered, this was one of the most daring and surprisingly rapid marches on record. Where Gourko crossed, the summit of the Balkans is 3,700 feet, of which 1,900 feet has to be ascended in the last eight miles, while on the southern slope the path descended in twelve miles 2,300 feet, over the greater part of which twenty miles the guns had to be dragged by the infantry. Two guns with their teams rolled down the ravine. The path, which was nothing but a mountain trail, was opened out in two days sufficiently to let the guns pass, by a

squadron of mounted pioneers (Cossacks), superintended by Major-General Rauch, an engineer officer.

In the Kyber Pass, 1878-79, the transport consisted chiefly of camels, ponies, and mules, supplemented, as the road was opened out, by bullock-carts and a few elephants. The difficulties of making a road in places were very great, and necessitated a large amount of blasting. During the return march after the first campaign, the thermometer frequently registered 120 degrees at eight o'clock in the evening. • The mortality amongst the transport animals was appalling, and in the vicinity of the camps there was a veritable Golgotha, the stench from which was awful, and produced cholera and other malignant diseases, which the troops carried with them on their homeward march. In places the pass was knee-deep in dust, and covered with large loose stones worked up by the constant traffic, while for weeks dust storms prevailed, without much intermission, day and night.

The removal of the dead camels, even a few hundred yards outside the camps, was a work of incessant labour and toil. But in spite of these difficulties, from twelve to fourteen miles a day was performed. The convoys were continually harassed, though never seriously delayed by the hostile tribesmen along the route.

“Plevna fell on the 10th of December, 1877, and the Russian reinforcements for General Gourko commenced their march to Orkhanie, a distance of 75 miles, on the 14th, and arrived there between the 20th and 23rd of December.

“From the 18th to the 22nd snow fell, with little intermission, and on the night of the 19th-20th the temperature fell to 3° Fahr. The roads then became an alternation of smooth ice and frozen masses of mud ten inches in diameter, and hard enough to resist even

artillery wheels. None of the horses were rough shod, the little Steppe horses of the intendance waggons were not shod at all. The result was that at every hill the waggons had to be hauled and pushed up by hand."

In 1880 General Roberts* marched from Kabul to Kandahar (321 miles) in 23 days, averaging 14 miles a day; his force was composed of 7,500 infantry, 1,600 cavalry, 18 mountain guns (7 pdrs.) Everything was carried on pack-animals, including the guns. He had with him about 8,000 camp-followers, making a total of about 18,000 men and 9,000 animals. There was no opposition. This march furnishes a good example of bringing troops to the right place at the right time in condition to fight. General Roberts not only relieved Kandahar, but on his arrival immediately attacked and defeated the Afghan army under Ayub Khan.

Experience and a knowledge of tactics may enable a commander to meet unforeseen difficulties as they present themselves; but reconnaissances are, under all circumstances, necessary for him to form even an approximate idea of the time his troops will need to overcome whatever obstacles nature or man's ingenuity may put in his path. The chief difficulty a general has to contend with when marching an army in the field is "Transport." Railroads may carry him to a certain point, and there leave him completely at the mercy of such transport as the country (perhaps an openly hostile one) affords—horse-waggons, bullock-carts, elephants, camels, ponies and mules, coolies, steamers, boats. All these different means of transport necessitate different calculations of time, and a knowledge of their special requirements.

* Now Field-Marshal Lord Roberts.

Infantry must always regulate the pace of a column comprising the three arms. An army can march rapidly or slowly, according to the efficiency of its infantry and its transport. The infantry soldier in the field has to carry, in addition to his usual kit, extra ammunition, entrenching tools, rations. The even distribution of this extra weight has to be provided for.

To avoid unnecessary fatigue, the following points should be observed: No unnecessary "parading" either before starting or at the end of a march. A steady long pace, which ought seldom to exceed $3\frac{1}{2}$ miles an hour. An average of three miles an hour is very good marching. Regular and convenient halts. The even distribution of "duties," advance-guard, outpost, baggage-guard, foraging, convoy and rear-guard. Regular duty rosters. Length of marches to be regulated by the nature of the country, and the state of the roads and means of transport. Weather and climate to be considered. Troops should have hot coffee and bread served out to them, if possible, before starting; if not, they should take the coffee in their canteens, and be allowed to warm it up during a halt.

The success of an army in the field is mainly dependent on its marching powers. A story told of the Duke of Wellington relates that, when he was asked what he considered the most important requirement of a soldier in time of war, he said, "Boots." On being asked what he placed next in importance to boots, he replied, "Another pair."

Mutton fat or grease of some sort should be regularly served out, and the men encouraged to grease their boots, inside and outside, frequently, especially in dry weather. Badly-fitting and badly-darned socks are too often the cause of discomfort and sore feet.

In hot climates the absence or presence of water, within reasonable distance of the road, will influence a commander, and often induce him to take a longer route to secure a sufficient supply. Water may be carried for men, but seldom in sufficient quantity for animals. The length of columns should be reduced as much as possible, with a view to lessening fatigue. In an average country, with good roads, 12 miles is an ordinary day's march, 15 miles a good march, and 20 miles a forced march.

The following is the approximate time necessary (as laid down by regulation) for a march of 14 miles, when all the precautions necessary in the presence of an enemy are observed (The force is a cavalry one) :—

Regiment or Battery.	On a good road.	On a bad road.	Snow, frost, &c.
H.A.	4 hours	6 hours	9 hours
Division of Cavalry ...	4 hours	7 hours	12 hours

The Order of March on Each Road

depends on whether the enemy is near or distant. If near, troops should march in the order in which they are likely to come into action; tactical units should, however, be kept as far as possible intact. Assuming that the advanced guard consists of three and a half squadrons of cavalry and one machine gun, hundred mounted infantry and one machine-gun, half company of Royal Engineers, one battery field artillery, two battalions of infantry and one machine-gun; the following is the order of march for the main column of a division :—

- | | |
|-------------------------------------|-----------------------------------|
| 1. Half a squadron of cavalry. | 5. One battalion of 1st brigade. |
| 2. Head Quarter Staff. | 6. Small arm ammunition 1st |
| 3. One battalion 1st brigade and | brigade. |
| one machine-gun. | 7. Intrenching tools 1st brigade. |
| 4. Divisional Artillery (three bat- | 8. Forge waggons of cavalry regi- |
| teries) half company R.E. | ment. |

- | | |
|------------------------------------|------------------------------------|
| 9. Two machine-guns. | 13. Infantry and artillery reserve |
| 10. Second brigade of infantry | ammunition train. |
| (less one company for rear guard). | 14. Ambulance and field hospital. |
| 11. Small arm ammunition carts. | 15. Led horses. |
| 12. Tool carts. | |

Interval of 100 to 1000 yards according to proximity of enemy:—

- | | |
|--------------------------------|---------------------------------|
| 16. Non-combatant staff. | 19. Baggage of troops according |
| 17. Military police. | to their order. |
| 18. Baggage of Divisional Head | 20. Commissariat train. |
| Quarter Staff. | 21. One company of infantry. |
| | 22. Military police. |

(*Vide* Plate VI.)

If the enemy be distant, the convenience of the troops only need be consulted. If possible a separate road should be told off to each arm; the *shortest* to the infantry, the *hardest* to the artillery, and the *softest* to the cavalry; each column must be preceded by its own advanced-guard, and so timed that all arrive about the same time at the new halting-ground.

If only one road is available, the cavalry and artillery should march first, as their work commences as soon as they reach camp; only when the road is likely to be much cut up should the infantry march first.

Rules as to Halts.

The first halt should take place about 30 minutes after starting, and should be sufficiently long to enable the men to re-arrange their belts, valises, &c., which are often put on hastily after striking the camp and packing the baggage. If the march is under 14 miles, halt for 30 minutes half way; if over 14 miles, halt for 15 minutes every two hours. This is the German rule.* Never halt in villages or short defiles; and, when halted, invariably throw out vedettes and sentries, and, if the

* The English rule is first halt half-an-hour after starting, and for infantry five minutes in each hour afterwards.

halt is of any duration, and the men break off and are allowed to take off their accoutrements, *march outposts* should be posted. Encamp where there is water.

Always obtain the best shelter procurable for all troops, and avoid unnecessary bivouacs, especially in wet weather, or when firewood is not procurable.

Use of Several Parallel Roads.

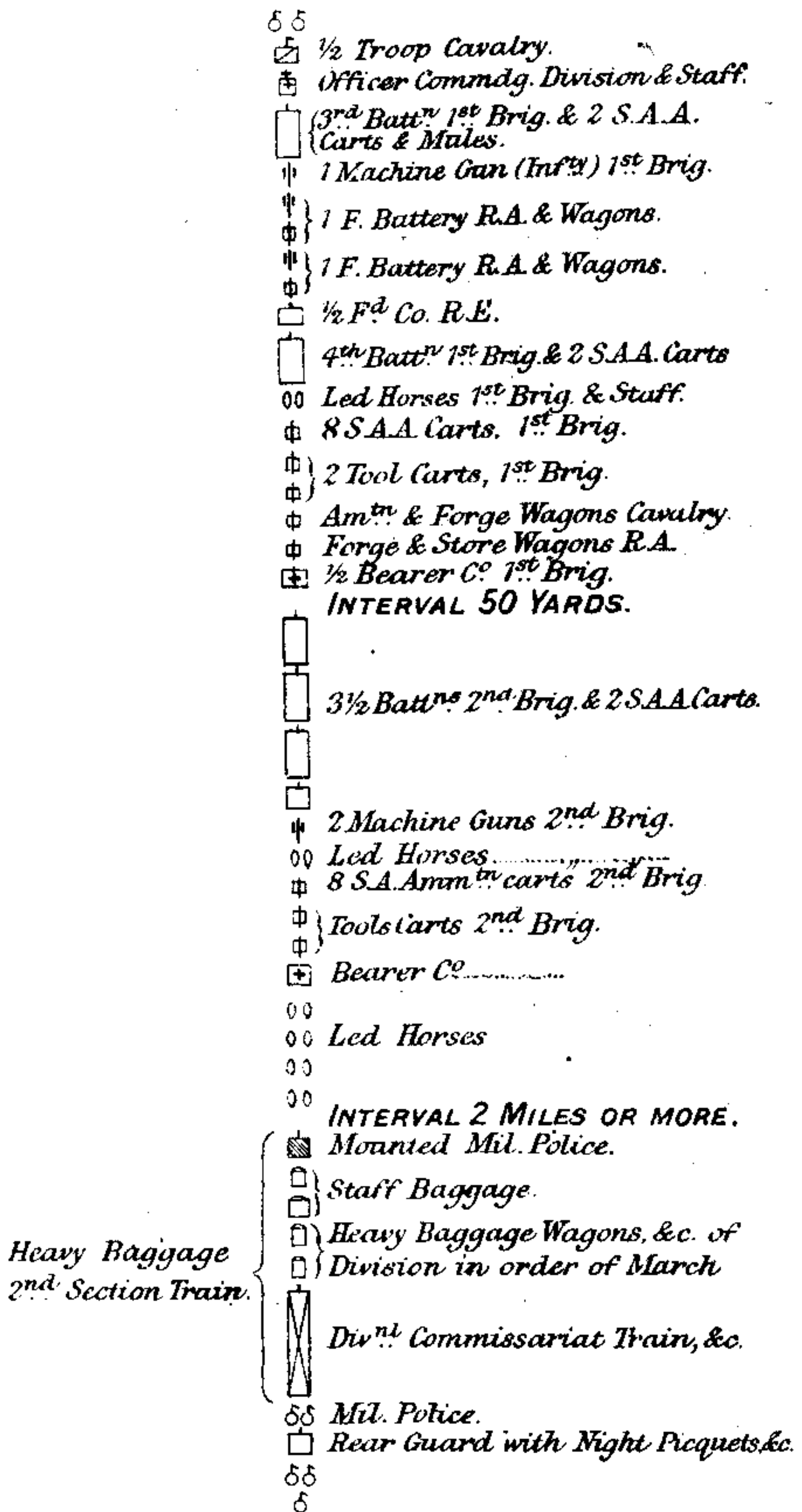
By marching on parallel roads a wider area of country is opened out and made available for supplies, the length of columns is also reduced, and increased speed with lessened fatigue is ensured, the heads of columns are more easily reached, deployment is facilitated.

Free communication must, however, exist between the different columns marching on parallel roads, or, being isolated, they may be beaten in detail.

Night Marches,

as a rule, should be avoided; they render men unfit to fight next day, are liable to panic, and cause many delays and annoyances. They are admissible in hot climates or as preliminary to a daybreak attack upon an enemy, who is very strongly posted, or who will probably not wait to fight if he gets warning of a hostile advance. The remarkable march which preceded the battle of Tel-el-Kebir furnishes a rare example of a carefully-planned and boldly-executed night advance against a strong position which resulted in a complete victory. The country was open, and Lord Wolseley skilfully contrived to bring up his troops in order of battle to the right place, at the right time, with the precision of a parade manœuvre.

Only those who have taken part in prolonged night operations can fully realise how difficult it is to keep touch between bodies of troops in a roadless or a mountainous country in the dark.



Delays and mishaps that are almost inconceivable by day occur with a dreary monotony at night, which is not relieved by the anxiety they cause to those who know that some unforeseen hitch has taken place.

At night an ample margin of time should always be allowed for these delays.

For order of march, and rules to be observed at night by marching columns when the enemy is near at hand, *vide* chapter on "Night Operations."

Owing to the large numbers of troops now employed, and the greater necessity for moving them quickly, night marches will probably be more frequent in future campaigns. They have always been resorted to in cases of emergency :

After a defeat.

Example.—Blucher's retreat on Wavre after Ligny.

To get out of a *faïse* position: Retreat of the 1st and 7th German corps after the battle of Colombey.

To forestall the enemy, or to steal a march on him, either when advancing or retiring, or to move troops into position for an attack under cover of darkness. Night marches should as a rule be so timed that attacks may take place at daybreak.

Flank Marches.

Flank marches are of two kinds, strategical and tactical. A tactical flank march is a march during which a force exposes its flank to attack, and is a dangerous operation if executed within striking distance of an enemy who possesses sufficient mobility to take advantage of the situation. There have been few campaigns of any importance which have not furnished instances of flank marches having to be undertaken, by one side or the other, to secure a new base, to turn the enemy's flank, to

effect a junction of forces, secure a favourable passage of a river, or seize some important strategical point.

The latest instance of a flank march was Osman Pasha's celebrated flank march to Plevna in 1877.

The danger of a flank march is in proportion to its liability to be interrupted. Celerity of movement is therefore the first consideration, in order to get over the march if possible without fighting; but if within striking distance of the enemy a flank march can only be conducted with sufficient safety when the formation adopted at the commencement of the movement is such as to ensure a right-timed and properly-organised deployment towards the enemy. The best formation to fulfil the two principal requirements viz., celerity, combined with readiness to fight, if the country and roads admit of it, is echelon. Otherwise a flank march within effective striking distance of the enemy could only be carried out with any degree of safety when covered by some naturally strong feature of country, such as a river or a forest.

The nature of the country to be traversed, or the paramount importance of attempting to push past at all hazards, may considerably modify the arrangements, but the generally-accepted precautions to be taken in order to provide for the safety of a force committed to a flank march within striking distance of the enemy are as follows:—

- (i.) Reconnoitre all roads leading in the right direction.
- (ii.) Keep all natural obstacles, such as rivers, heights, woods, &c., between the nearest column and the enemy, and occupy all defiles on exposed flank.
- (iii.) If the country is close, keep a strong flank guard, chiefly composed of infantry, on the

road nearest the enemy. If the country is open, some cavalry will be useful for reconnoitring.

(iv.) The best use cavalry, mounted infantry, and horse artillery can be put to is making demonstrations to distract the enemy's attention from the real object in view.

(v.) The order of march for the main body should be columns in echelon, moving on as many roads as possible within supporting distance of each other. The column on the protected flank, *i.e.*, furthest from the enemy, should move first, so as to get to a place from whence it can aid the other columns if they are headed, by taking the enemy in flank.

The principle of the echelon formation, *viz.*, that of mutual support, is here well exemplified.

(vi.) Keep out advanced and rear guards with each column.

(vii.) Place some guns at the head and tail of each column, so as to be available to come into action in any direction.

(viii.) Keep cavalry not required for reconnoitring or making demonstrations together with all trains, on a separate road, if possible, on the protected flank.

(ix.) Be careful to keep open communications between the different columns on the march.

(x.) March on the widest front possible. All traffic should be stopped by the advanced guards. Along good roads waggons can often move two abreast, and infantry march in sections.

The wider the formation, the quicker the deployment to the front if necessary.

- (xi.) As a rule the flank guard should do the fighting necessary to delay the enemy, while the main columns are pushed on rapidly without allowing them to be drawn into an engagement on the flank.

The rules for maintaining discipline on the march, and for crossing temporary bridges, are laid down in the Drill Books, and should be strictly enforced with all troops on the line of march.

During a march of a large army a certain percentage of men, from one cause or another, become used up. All stragglers, as soon as they are fit to resume duty, should be formed into companies and utilized on the lines of communication.

Forced marches should rarely be undertaken unless the probable gain is sufficient to counterbalance the loss likely to be occasioned by them.

While armies are being concentrated troops can be moved about by rail; but after war has commenced railroads are apt to be blocked by traffic, and when there is only a single line it is sometimes quicker to move a portion of the army, *i.e.*, the cavalry, artillery, and trains, by road than by rail.

In an enemy's country it is very difficult to move large bodies of troops by rail.

Under ordinary circumstances the number of troop trains to be counted on daily ought to be pretty accurately ascertained.

For short distances, under 120 miles, it is quicker to march an army corps than to convey it by rail along a single line; it is only when a railroad extends to a greater distance that there is any saving of time in

greater distance that there is any saving of time in using it for a whole army corps.

The number of trains that can be dispatched in one day from one station is limited to the number that can be properly loaded in the 24 hours.

Railways are chiefly used as a means of provisioning an army, and conveying sick, wounded, and prisoners.

Sea Transport depends on the number and condition of vessels available. The chief difficulties connected with this means of transport is embarkation and disembarkation.

To take an army across the sea necessitates complete command of it, or a fleet of warships to protect the transports.

There is very little difference between the speed of steamers and the rate of railway travelling suitable to the conveyance of large bodies of troops.

River Transport. Steamers, barges, &c., may be utilized chiefly for the conveyance of infantry, and for supplying an army.

The all-important details regarding the supply and transport of an army, whether marching or halting, by means of railways, boats, waggons, pack animals or carriers, together with hospital arrangements, depôts, stores, &c., are outside the scope of a tactical work of this description. It is related of the Duke of Wellington that he attributed his successful career to the fact that he had studied how to feed an army before he conducted a campaign.

An army in the field is supplied—

I. From the depôts established at the base of operations.

II. Advanced depôts.

III. Field depôts, which should be within a day's march of the army.

IV. What the troops carry with them.

The various methods of obtaining supplies are (1) by contract, (2) purchasing supplies in the country passed through, (3) requisitioning the country.

Supplies of all sorts are conveyed to the front along the principal lines of communication, where the depôts are established either by rail, carts, pack animals, or porters.

CHAPTER VI.

INFANTRY.

INFANTRY is the principal arm, and generally has to bear the brunt of the fighting and hard work of a campaign. Its action is fire and shock ; it is more independent of ground and circumstances than either cavalry or artillery, and can fight alone.

The three things essential to a trained infantry soldier are:—

- (1) To be able to march.
- (2) To be able to shoot.
- (3) To be able to use a spade and pick.

Defence.

The distribution of infantry in defence must be adapted to:—

- (1) The object to be attained.
- (2) The configuration of the ground.
- (3) The number of troops available.
- (4) The nature of the enemy's attack, and the arms he fights with.

The Drill Book says: “The principles on which a force is disposed for defence are similar to those for attack, with certain modifications. As in the attack,

each unit should be allotted a specific duty, that is, a certain section of the defence, or a definite duty in the general line." In close or broken country, cut up by woods, enclosures, and covers, the ground which can be supervised by one commander is limited in extent, and consequently the *subdivisions of the front line* must be more numerous, "so that each unit may itself provide its own reserves. The importance of retaining these reserves in hand, and the danger of employing them too early, can hardly be overrated. When they are employed, the commander of the force should be at once informed.

"Where roads run through the front of the position, units should be placed astride of them, so that there may be undivided responsibility for the defence of these approaches; similarly, it is desirable that the defence of woods, and other like points, should, as far as practicable, be entrusted to separate and distinct units."

The defence differs from the attack, in that there is no fixed maximum frontage for the various units, which must be distributed in accordance with the ground.

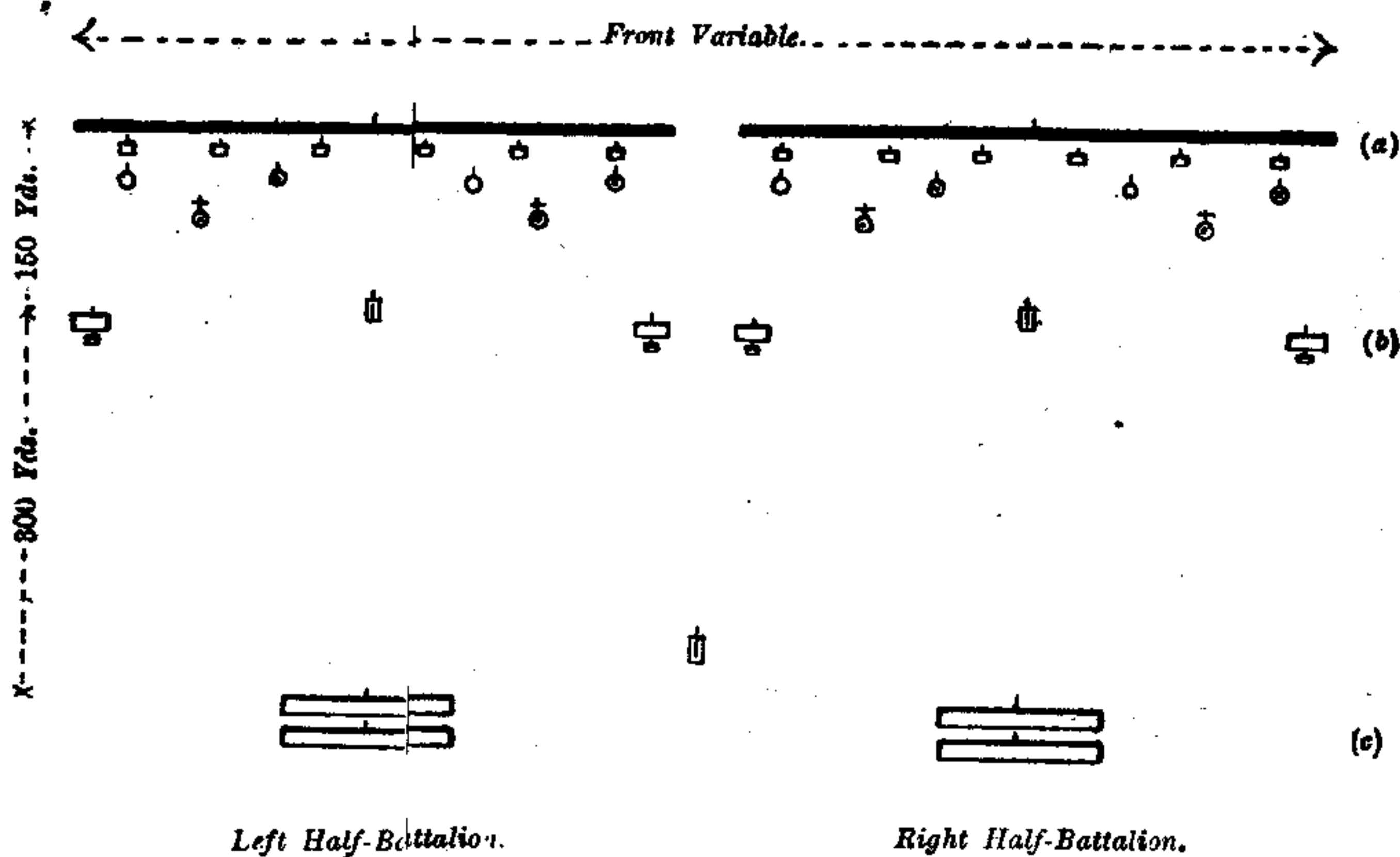
Without in any way preventing a commander from disposing of his firing line in such a manner as he may consider best suited to the locality he is called upon to defend, the following simple method of posting infantry in the first line is suggested, as being capable of the utmost expansion, and suitable to all occasions (*vide* Plate VII.).

Defence formations are only applicable to the first line, and the following conditions should be kept in view :—

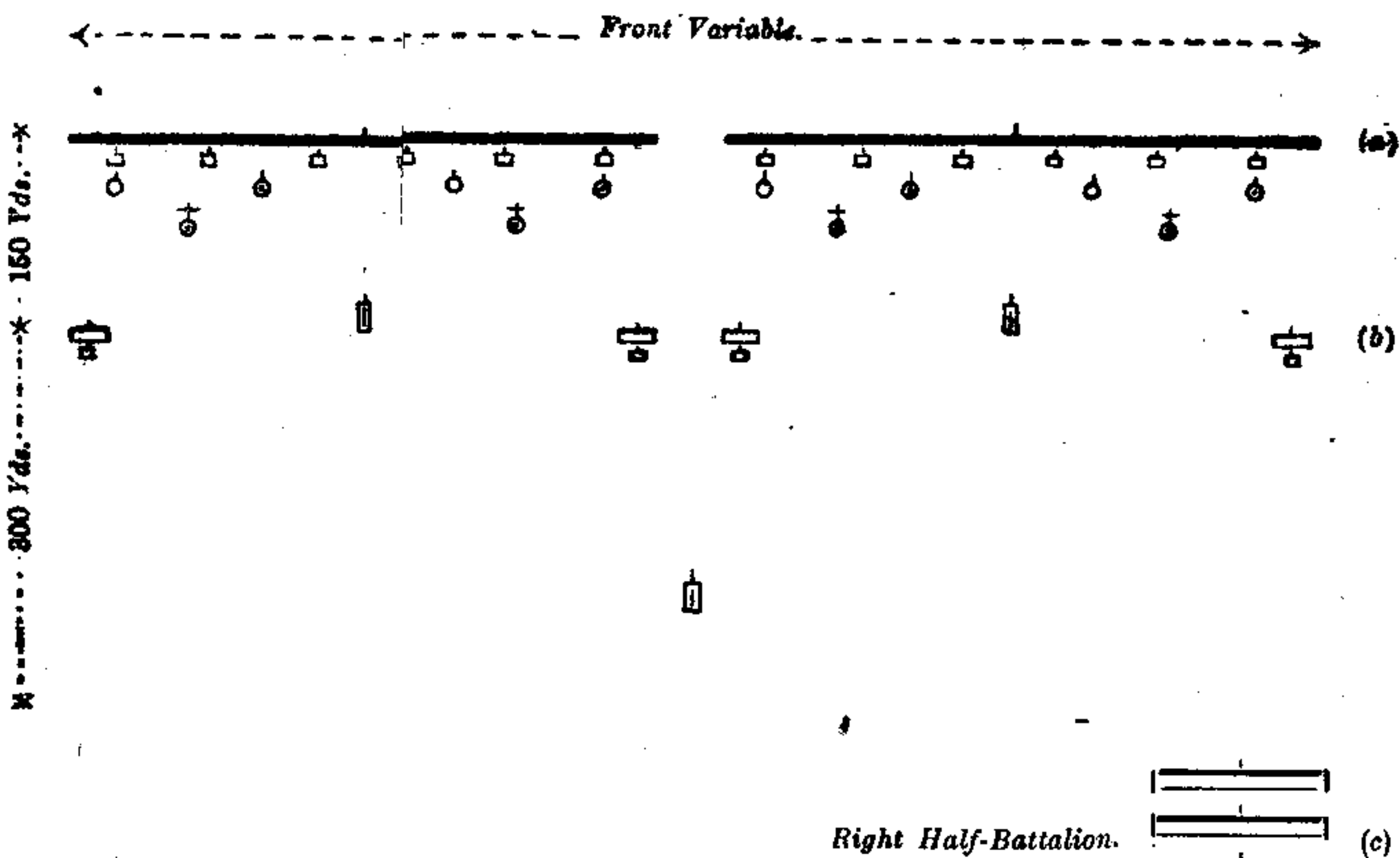
- (1) Every possible advantage should be taken of the accidents of ground, and time and means available for constructing shelter trenches.

DEFENCE.

DISTRIBUTION OF A CENTRAL BATTALION IN THE FIRST LINE.



DISTRIBUTION OF A FLANK BATTALION IN THE FIRST LINE.



(2) Each section of defence should be formed as a separate unit of command, arranging for its own supports and local reserves.

(3) One half of the men of each battalion should be in reserve; of the remainder, as many rifles as can be effectively used and constantly maintained should be posted as firing line and supports.

(4) There should be no mixing up of fire units.

A central battalion in the first line of defence will be divided into two half battalions and distributed as follows:—

The commanders of half battalions will each detail one double company to furnish firing line and supports. The three inner sections of each company being distributed in the firing line, the outer sections posted in rear of the outer flanks of their respective companies.

As casualties occur, the commanders of companies will close their men inwards, on the centre of the double company, which will be marked by a guide. The supports will be introduced into the firing line on the flanks as casualties occur, and the sections kept intact under their own officers.

An interval of at least six paces will be kept between half battalions, in the same section of defence.

The remaining two companies of each half battalion will be in local reserve.

The front allotted to each battalion will be indicated by brigadiers, under instructions from the General commanding the division, who, in making his general dispositions, will be influenced by the ground, the number of troops at his disposal, and the nature of the attack.

The distances between firing line and supports, and between supports and reserves, will be regulated by the

officers commanding battalions, and, within certain limits, will depend on the cover available, and the progress of the fight. Supports should not seek for natural cover farther back than 150 yards from the firing line, and reserves should rarely be posted farther back than 300 yards from the supports.

The simplicity of this formation is, perhaps, its strongest recommendation. It allows of 25 per cent. of the firing line being kept in hand to replace casualties and give fresh vitality to the defence, and 50 per cent. of the first line in local reserve, keeps the different units intact, and is more or less applicable to all defensive positions.

Troops in the first line should be economised in the defence whose object is to achieve a decisive result, in order to keep strong reserves at points from which an offensive movement can most readily be executed at any given moment.

The Attack.

It is generally admitted that there ought to be no "standard" form of attack, which means that rules cannot be laid down beforehand for all movements in the presence of an enemy.

The Infantry Drill Book, 1896, lays down, however, that all formations for attack should :—

- (1) Admit of the most effective fire.
- (2) Offer the smallest target to the enemy.
- (3) Allow of the use of such cover as may be consistent with a direct advance.

The action of infantry consists primarily of the fire of the extended line, the development of which depends

on the number of rifles that can be made effective. This fire must be not only developed but maintained, and supports and reserves have to be provided, even after the firing line is fully extended, to keep its strength up to as many rifles as can be efficiently worked. The most effective fire is produced by men in line, and it is, therefore, laid down that although the front of attacks vary with the object, the ground, and the necessity for providing reinforcements, they should, as a rule, not exceed that which the troops in the *first line* would occupy if deployed into line two deep—*i.e.*, it should always admit of the most effective fire being produced at the will of the commanders in the fighting line.

Attacking infantry is usually formed into three bodies distributed in depth. This arrangement not only admits of reinforcements, but presents a succession of shallow targets to the fire of the enemy, and enables the commander of a unit to retain as long as possible a portion of his force with which to meet the contingencies of an engagement. Thus the second condition is fulfilled. Commanders of companies must work together, and give each other time to get their men into the general alignment after passing obstacles. It is most essential that this co-operation should exist between the different units comprising the first line. All extended bodies should close up when not exposed to fire, and extend again before they come under fire; by this means the third condition is fulfilled.

In the attack by infantry the main principles to be observed are:—

(1) To reach, with as little loss as possible, a place from whence the most effective fire can be developed, and that of the defenders can be subdued before the assault is delivered.

(2) All movements must conform to the main idea, and converge to the decisive point.

(3) Troops must be kept in hand as long as possible.

For purposes of description the attack may be divided into four phases:—

I.

The preliminary formation, which takes place out of range of the enemy's artillery, where the troops are formed up in greater strength, especially in depth, opposite the point or points where it is intended to drive the attack home, and in lesser strength opposite those portions of the enemy's line where it is intended merely to hold him to his ground. Their distribution should in every way be concealed from the enemy.

II.

The first halt, when the firing line tries to envelop the enemy's position, and between the ranges of 800 to 500 yards, keeps up on it the most effective fire possible. This fire is calculated to disturb the defenders and cause them to fire hurriedly. Under its cover the second and third lines approach nearer to the position.

III.

The final halt preparatory to the assault, within 500 yards of the defenders, where the firing line, now fully reinforced by its supports and reserves, endeavours to establish itself in good defensive positions all along the front, whence both false and real attacks can be made on the position. During this period the second line is assembled in several lines deep opposite that portion of the enemy's position which has been selected for assault.

IV.

The Assault.—When the order to assault is given, the second line advances, and as it strikes the first line, carries the assaulting portions forward.

The Action of the Third Line.

The *third line*, preparatory to the assault, should take up a good defensive position, where, in the event of reverse, the enemy can be checked, and behind the flanks of which the remains of the first and second lines can be rallied. In the event of success it marches to the front.

Infantry Fire Tactics.

Fire tactics is the science of obtaining the best results from the men's weapons that circumstances of time and place admit of.

A successful battle depends on the application of *fire tactics*.

The company commanders in the first line are now chiefly responsible for carrying out the general plan of attack. They decide when to open fire, the description of fire to be employed, the target to be aimed at, and they give the orders to change the target and the description of fire according to the requirements of the fight. They are also responsible for the distribution of ammunition, and decide when and how to reinforce the firing line; but they look to their half company and section commanders, *i.e.*, the commanders of fire units to maintain the necessary discipline of their units. As the captain is responsible to the battalion commander, so the half company and section leaders are answerable to the captain for their units; and

thus the chain of responsibility is extended until the object of drill and organisation is attained, viz., the development of the individual intelligence of all ranks, so that, while looking to their leaders for the tactical conduct of the battle, they may be able, in the heat of action, to act for themselves should the circumstances of the fight prevent the transmission of orders.

Inferior fire discipline means unsteady firing, which results in—

- (i.) Waste of ammunition.
- (ii.) Encouragement to the enemy.

The German Field Exercise says: "The fire effect of entire fighting lines depends on the *direction* of the combined performances of a large number of rifles. The simultaneous employment of the same kind of fire, by the several portions of the line, is not required. It should be regarded as an invariable rule, with regard to the employment of fire, that it is only of a decisive nature when *delivered at such ranges* as will ensure its taking effect on the enemy's troops. In the majority of cases the enemy's infantry would be the most important and profitable objective; at the same time, firing at batteries should not be overlooked. The choice of objects to fire at is primarily decided by their temporary tactical importance. The next objects to be selected are those which, owing to their height, depth, width, and density, offer a prospect of high results."

The first objects to be fired at should generally be the nearest groups. General Skobeloff said: "I counsel the leaders of units to keep a watchful eye on the enemy's advanced groups; there is not a doubt but that in annihilating them we destroy, in the germ, all the initiative force of the rest of the mass."

In the defence, if the enemy's artillery advances within 1,200 yards, it should be made to pay dearly, unless it is closely supported by infantry. The same applies to the attack on guns. Infantry should get well within 1,200 yards, as much nearer as cover admits of, and then open a destructive fire.

Officers observed to be reconnoitring should always be fired on by marksmen. Men bringing up ammunition should also be fired on when seen.

Infantry fire is of four descriptions :—

- (i.) Volley.
- (ii.) Independent.
- (iii.) Individual.
- (iv.) Magazine.

The terms applied to ranges are—Distant, Long, Medium, and Decisive. In defence, the fire which causes the heaviest losses and most checks advance, is well-directed volleys at medium and decisive ranges. In the attack, victory may be prepared at medium, but it is gained at decisive, ranges.

Commanders in the firing line should bear in mind that the best effect is produced by the largest fire units, so long as they are under control.

The ground over which troops destined to attack have to move, is subjected in different places to different kinds of fire, which necessitates frequent changes of formation to avoid heavy losses.

The men of the firing line can avail themselves of cover that may offer in the direct line of their advance, but they must never forget that the utilisation of cover in attack is subordinate to cohesion and the necessity for pressing forward unremittingly, and that the right direction must be kept regardless of all loss.

The vulnerability of troops is affected chiefly by their density; for instance, a company in column of sections is always twice as vulnerable as a company in line, but as it gets nearer to the enemy its vulnerability increases very rapidly: this is because the beaten zone (that portion of ground which is struck by bullets aimed at the same object with the same elevation) increases in depth as the range decreases, owing to the flatter trajectory. On the other hand, the beaten zone increases in width as the range increases, owing to the unsteadiness of the firer—a bullet always deviates more or less, and it gets wider and wider of the spot aimed at the farther it travels.

Deep formations are less vulnerable at long ranges than at short, and are therefore, within certain limits, admissible, in order to avoid the evil which is sometimes caused by a premature extension of a considerable body of troops.

Ground chiefly affects infantry tactics, first, by the cover it offers, and, secondly, by the extensions that it admits of.

Infantry v. Cavalry.

The action of infantry depends on whether the cavalry is acting alone or in conjunction with the other arms. Against cavalry alone, any formation suited to the ground which admits of concentrated fire is good.

In the open, infantry in extended order, if threatened by cavalry, may sometimes form groups to repel it; if threatened by overwhelming numbers of cavalry, charging simultaneously from different directions, square may be formed—otherwise square should not be resorted to unless the infantry is demoralised or out of ammunition.

If the enemy's cavalry is acting in conjunction with infantry or artillery, closing up should be avoided as long as possible, as one of the objects of the cavalry will be to make its opponent's infantry close, and thus present a better target to its own infantry or artillery to fire at.

Infantry even in the attack may sometimes open an effective long-range fire on bodies of cavalry or artillery that come within range. Magazine fire should be opened when cavalry get within 300 yards.

Infantry v. Artillery.

Much will depend on whether the artillery is engaged with other troops; if it is free to devote its whole attention against the infantry, a larger force will be required to attack it than if the artillery is engaged at the time with other troops, artillery or cavalry.

It should be remembered that the speciality of artillery is its long range fire, and that infantry when opposed to it is at a disadvantage at distant and long ranges; but at medium and short ranges infantry has the advantage.

Infantry should therefore endeavour to get as close to artillery as the ground admits of.

When artillery is in motion, unlimbering, or limbering up, the teams form the best target; at other times, the gunners.

Cases may occur when infantry may engage artillery with effect at long ranges, but this will generally be on the side of the defence.

Infantry should never compete with their own artillery at long ranges during the advance to attack. When a

small force of infantry is employed against artillery which is in action against other troops, fire should be concentrated against one gun at a time.

In the absence of artillery, infantry may be specially detailed to support an attack with long range rifle fire.

CHAPTER VII.

SUPPLY OF AMMUNITION TO INFANTRY IN THE FIELD.

THE supply of ammunition to troops in action is one of the most important considerations in war. At long ranges fire-discipline ought to enable officers to control its expenditure within certain limits; but when two fighting lines get within short ranges of each other, and the section commanders begin to fall, all control ceases, the fire becomes individual, and the expenditure of ammunition is enormous.

If troops are not allowed to waste their ammunition at the earlier stages of an attack, they ought to have sufficient to carry them on to the position; but the moment they have reached it, or in the event of their having to halt behind cover, or fall back fighting, ammunition must be forthcoming in sufficient quantities to enable them to withstand the determined counter-attacks which may be looked for. The following orders regarding the supply of ammunition to infantry in the field have recently been issued, and too much importance cannot be attached to them.

The amount of .303-bore small-arm ammunition taken into the field for infantry is laid down in the Drill Book, but is liable to alteration according to the equipment. It is carried partly by the soldier himself, and the rest is carried for him, and distributed between the regimental ammunition-carts and mules which accompany the regi-

ment, the divisional ammunition column, and the ammunition park.

The amount of small-arm ammunition taken into the field for infantry is—

“100 rounds carried by the soldier.

85 in four small-arm ammunition carts, and on two mules accompanying the battalion—Battalion Reserve.

“185 rounds in regimental charge.

77 in the divisional ammunition column.

60 in the ammunition park.

“322 : total rounds per rifle, on first taking the field.

“The position of the divisional ammunition columns and ammunition parks on the line of march is settled by general officers commanding divisions and army corps.

“Infantry brigade reserve :—Each brigadier will detail ~~a~~ a selected officer to command the *brigade ammunition reserve*, formed from his battalions' S.A.A. carts.

“On the march two small-arm ammunition carts and two mules follow immediately in rear of each battalion; the remaining two S.A.A. carts per battalion (total, eight in a four-battalion brigade) will be brigaded, and will follow in rear of the brigade, under command of the officer mentioned above.

“In action, one S.A.A. cart and one mule will follow each half battalion, the mule in rear of the *supports*, the cart in rear of the reserve; the brigade ammunition reserve will follow in rear of the centre of the brigade.

“Brigadiers, commanding officers, and the officer commanding the brigade ammunition reserve, must keep themselves mutually informed of each other's position.

“When a cart with the battalion is emptied it will be

sent back to the brigade ammunition reserve, and will be replaced by a full cart; as soon as there are four empty S.A.A. carts with the brigade ammunition reserve, the officer in charge will signal, or despatch a message, to the officer commanding the divisional ammunition column: 'Send up four S.A.A. carts to the — brigade.'

"The horses that bring up the full carts will take back the empty ones.

"In broken ground, or in the case of a battalion being detached, the S.A.A. carts will be distributed under orders of the general officer commanding to follow battalions."

The following are the instructions laid down in the Drill Book for the officer in charge of a brigade ammunition reserve of infantry:—

- "(i.) He will as soon as possible open up communication by signallers or mounted orderly with the ammunition column.
- "(ii.) The earliest opportunity will be taken when four S.A.A. carts (three in a three-battalion brigade) are empty to get them replaced by full carts. The ammunition reserve should be available for the brigade generally.
- "(iii.) No men or horses belonging to the infantry brigade are to be sent to the ammunition column. No men or horses belonging to the ammunition column are to be sent further to the front than the brigade ammunition reserve (except in case of very great emergency).
- "(iv.) Empty S.A.A. carts are to keep with the brigade ammunition reserve as they advance, until they are replaced by full ones.
- "(v.) Receipts are to be signed by the officer in charge of the brigade ammunition reserve for the full number of carts received by him.

“ *Carriers.*—The captain of every company will detail one non-commissioned officer and two or three privates to act when required as ammunition carriers.

“ Whenever a general action is anticipated, commanding officers will issue to the men 50 rounds from the S.A.A. carts, so that every man shall carry 150 rounds on his person.

“ If for any reason these carts are not at hand, the companies of the first line will be furnished with two extra packets per man from the other companies. This will be replaced as soon as possible from the battalion carts.

“ During the action the carriers or reinforcements bring up ammunition from the mules (or from the carts) in bags, and distribute it to the men in the ranks.

“ When more ammunition is required by the firing line it will be taken forward by any men at hand from the main body, acting as carriers.

“ The carriers will move direct to the companies for which they are destined, and will *remain in their ranks until the action is over.*

“ It is the duty of the supernumeraries to make sure that all ammunition from the killed and wounded is collected and distributed to the firing line, its supports and reserves.

“ The ammunition should be pushed forward as far as practicable. The carts ought in ordinary circumstances to get within 1,000 yards of the firing line, and in broken and undulating ground considerably nearer. With pack animals it should be practicable to get within 500 yards of the firing line.” *

* Infantry Drill, 1896.

CHAPTER VIII.

CAVALRY.

THE following terms of formation and manœuvre are given in the Cavalry Drill Book, 1896 :—

A DIVISION.—The largest tactical body in which cavalry is formed, usually three brigades, two or three batteries of horse artillery.

A BRIGADE.—Consists of three regiments and a battery of horse artillery when acting independently, and of two or three regiments when it forms a component part of a cavalry division.

A REGIMENT.—Consists of two or more squadrons.

A WING.—The half of a regiment or larger body. Wings are termed “Right” and “Left” when in line, and “Leading” or “Rear” when in column or échelon.

A SQUADRON.—Is the tactical unit of cavalry, and is composed of three or four troops depending on its strength.

FOURS.—Eight men abreast; four front rank and four rear rank.

A SECTION.—One of the subdivisions of a troop; it numbers from six to eight men (four in the front rank, including a N.C. officer in command, and two, three, or four men in rear rank).

A HALF-SECTION.—Two files.

A FILE.—Two men ; a front rank man and his rear rank man.

SINGLE FILE.—One front rank man or his covering rear rank man.

HALF-COLUMN.—A form of échelon, in which the several bodies composing it are placed exactly half-way between line and open column, so that a half-wheel to one flank brings them into line with the proper intervals (if any), while a half-wheel to the other flank brings them into open column.

Half-column formed to the front from line or column is distinguished as direct half-column, while that produced by wheeling troops, &c., half-right (or left) from line or column is termed oblique half-column.

ORDER.—The increased distance taken by the rear rank on some occasions of parade.

SERREFILES.—Such officers, N.C. officers, and others, as may be detailed to ride in rear of the rear rank of a squadron when in line.

GROUND SCOUTS.—Men employed to reconnoitre the ground over which a body of troops is to move.

COMBAT PATROLS.—Generally a complete section or half-section detached from a body of troops during manœuvre, or when within the sphere of action of an enemy, to guard it against surprise, and to ascertain the position, strength, and movements of the enemy.

OPEN FILES.—Files at two yards interval from one another.

HALF-EXTENDED FILES.—Files in line at four yards interval from one another.

EXTENDED FILES.—Files at eight yards interval from one another.

PASSING LINE.—The line on which the troops march past at a review, and at the centre of which is the reviewing officer's post.

A HORSE'S LENGTH.—A term of measurement (eight feet).

A HORSE'S WIDTH.—Three feet, which includes three inches outside the rider's knee on either side.

The principles of cavalry tactics remain unaltered, and its chief *rôle* in battle, as heretofore, will be at the head and on the flanks of its own army, covering deployments, while threatening those of the enemy, seizing favourable opportunities for surprising artillery and advanced infantry, and for co-operating independently with the other arms. To reap the fruits of a victory, or to cover a retreat, if the ground admits of their action, a commander will always look to his cavalry and horse artillery, their conduct in both cases being characterised by an absence of hesitation, and an almost total disregard of risks which would be reprehensible under ordinary circumstances. The following extract, which seems to express the prevailing views which are held on the Continent on the subject of "Cavalry in Modern War," is taken from an article which appeared in the "Revue de Deux Mondes," 15th September, 1889, translated in the Intelligence Division of the War Office by Colonel C. W. Bowdler Bell :—

"The Battle."

"Two modern armies, with huge fronts and flanks in wide and deep columns, are in presence of each other, if not visually, at any rate by contact. Already the networks formed by their patrols touch and embrace each other. A few steps more, and the two monsters will have come to blows.

“What share will the cavalry take in this gigantic collision ?

“It has been said or written to satiety, that the indefinite improvements in firearms would condemn large masses of cavalry to impotence. But if we enquire thoroughly into the value of these declarations, we shall be astonished to find that they rest on arguments of assertion, and rarely on an exact analysis of facts ; and, indeed, if we endeavour to deduce from the study of campaigns the causes which, at certain epochs, have extended or diminished the *rôle* of cavalry, we find that these causes have no strict relation to the changes of armament, but depend almost exclusively on the principles which have governed the training and employment of the arm ; in a word, on the character of those who have had the command.

“This lesson shines out clearly from one end of history to the other. If it were otherwise, the cavalry under Frederick would have played a much more subordinate part than under Charles V., and the squadrons of the First Empire would have gained less brilliant successes than those of Louis XIII., or Louis XIV. In fact, the value of that arm appears to be quite unaffected by the considerations habitually brought forward by its detractors. It is not regulated by the power of firearms. Cavalry is in jeopardy when it has no leaders who understand how to train it. Muskets carried further and straighter in Napoleon’s time than in the days of Charles XII., or Gustavus Adolphus ; but anxious to make use of it, having the same faith in it which it had in him, and thinking more of its real use than of how it might be spared, he always placed it where it could intervene with the best chances of success, and put it under the orders of generals who were competent to make vigor-

ous use of it. Thus, at Marengo, Aspern, Eylau, and Borodino, it decided in an almost regal manner the fate of the day.

“These examples are, however, somewhat distant, but there are more recent ones in 1866 and 1870, which positively disprove the theoretical commonplace of the uselessness of cavalry. Custozza, Königgrätz, Vionville, are at any rate three modern battles. As an exception (and too rare a one), it was decided to have recourse to the cavalry, and the results were considerable, and such as had not been hoped for. At Custozza, two bodies of Austrian cavalry, ridiculously out of proportion,—viz., fifteen squadrons on one side, and only one on the other, threw themselves on the heads of columns of the 3rd Italian Corps, at the moment of their debouching on the field of battle. The moral effect, the shock, produced by their impetuous charge was such that the whole corps was disorganised and paralysed for the rest of the day. Sixteen squadrons rendered 25,000 immobile, and diverted them from the field of battle. At Königgrätz, the Austrian cavalry divisions, unskilfully massed in rear, were unable to intervene either in the opening scenes or in the course of the battle. But towards the close, when the Austrian army had been irretrievably beaten, it was decided, all too late, to employ them. Two divisions hurled themselves against the victorious Prussian columns, and by their heroic devotion prevented the retreat being turned into a disorderly rout. At Voinville, the legendary charge of the six squadrons of Bredow’s brigade cut short the movement of the French 6th Corps, and enabled the Prussian general staff to bring fresh troops into line. Bredow’s brigade was worsted, it is true, but not until it had saved its own army from imminent dangers and re-established the equilibrium.

which had been disturbed. Here, then, are three definite facts which are opposed to the didactic subtleties which people are wont to accept so lightly.

“Here are three modern battle-fields on which at three different moments,—viz., the commencement, the middle, and the close of the day, the cavalry intervened with incontestable success.

“By its audacity it prepares a victory; by its devotion it wards off a disaster. In short, it produces tactical results of the first order.”

It might be urged that none of the cases here quoted are conclusive arguments in favour of cavalry *versus* infantry.

The first example, Custozza, was a favourable opportunity promptly seized, for attacking infantry before it deployed.

The second was heroic, but singularly favoured by the total dissolution of all tactical units, which marked the introduction of the breech-loading rifle. The battle of Königgrätz was won by a mob of skirmishers which, although victorious owing to their superior fire action, presented at the close of the battle an opportunity for the Austrian cavalry to charge, which the Prussian army is not likely to offer again.

The third case, Bredow's charge at Voinville, was a death-ride, one of those critical situations when the superior mobility of cavalry seems almost to demand its sacrifice in order to gain time for reinforcements of infantry to come up. Between the aspirations of cavalry enthusiasts and the opinions of those who are perhaps inclined to somewhat overrate, not the improvements in modern firearms, but the self-reliance and fire discipline of infantry fighting on the extended fronts, which the efficiency of these arms now demands, there is, without

doubt, an independent medium tactical *rôle* for cavalry to play in co-operation with the other arms on the battle-fields of the future.

There are five things essential to secure the success of a charge :—

1. The ground must be suitable.
2. An opportunity must offer.
3. The pace must be rapid.
4. Cohesion must be maintained.
5. A reserve must be provided.

The two fundamental principles of cavalry linear tactics are (1) organisation in the direction of depth; this provides for mutual assistance from the rear, and concentrated action on a decisive point, and prevents the using up of the whole force at the same moment; (2) provision for a sufficiently strong first line to ensure, or, at any rate, render possible, the defeat of the enemy by the first blow, thus leaving the other lines intact and free to meet further eventualities.

In order to co-operate with infantry and artillery, a cavalry leader must be thoroughly acquainted with the tactics of the three arms combined; no arm is so entirely dependent on the skill of its leader, for in order to obtain either a moral or a physical success, cavalry must be on the spot at the right moment, and ready to move rapidly and in good order.

Undoubtedly the extended formations of modern tactics, and the necessity for rapid movements, render infantry on both sides more open to the attacks of cavalry, while the greater extent of battle-fields affords opportunities for cavalry while manœuvring to approach within charging distance of their opponents on some parts of the field. On the other hand, cavalry will no longer be able to approach under cover of smoke; fire-arms have been

greatly improved, and charging cavalry is liable to be longer exposed than formerly to the fire of artillery and infantry.

The supreme commander should retain a hold on his cavalry until the battle is developed, and then give his general instructions to the cavalry commander. All further movements of the cavalry should rest in the hands of its leader, whose success will depend on his dash, tempered by his knowledge of tactics and appreciation of ground.

Cavalry v. Cavalry.

The descriptions and uses of the various orders of formation are the same in principle for the regiment, the brigade, or the division, but an interval of sixteen yards must be preserved between regiments, and also between brigades whether in line or column. With a small body of cavalry, such as a single squadron or a single regiment, the greater part if not the whole strength will usually be put into the first line, as it is always essential to the success of a charge that the first line should be strong enough to overthrow the enemy in the first shock of collision. For a division the orders of formation are:—

Rendezvous Orders.

The Preparatory Order.

The Attack Order.

The rendezvous orders are:—The divisional mass, line of brigade columns of masses at close intervals, columns of brigade or regimental masses. The preparatory order will have to be modified to suit circumstances of ground, &c., but, as a rule, will take the form of double échelon, the leading brigade in brigade mass, in line of squadron columns or line of masses at deploying interval, the other two brigades, each in brigade mass or

column of masses, following in *échelon* on either flank at 200 yards distance, and outflanking the leading brigade by 50 to 100 yards.

The batteries, each accompanied by two wagons, will move in the vicinity of the division wherever the ground offers most advantages; as a rule, either on a flank or in rear of the leading brigade.*

The order of attack must depend on the dispositions of the enemy and the configuration of the ground. To lay down fixed rules for cavalry charges would be fatal to dash, which is, above all, the true characteristic of a good cavalry leader.

For drill purposes the order of attack for a division or brigade is as follows:—

1st line, a brigade in line of squadron columns.

2nd line, a brigade in line of squadron columns or *échelon* of regiments, at 180 to 250 yards distance, and 50 to 100 yards interval from the 1st line on the flank, which is assumed to be most exposed.

3rd line, a brigade in mass at 350 to 400 yards distance, and 16 yards interval from the 1st line, on the opposite flank to the 2nd line.

The 1st line may sometimes be reinforced by squadrons from the 2nd or 3rd lines (in order to make it strong enough to defeat the enemy at the first blow). When the 3rd line is strong enough, its inward regiment may, if necessary, furnish two or more succour squadrons, which will follow the 1st line, on the same alignment as

* The Artillery Drill Book, 1896, page 36, says: "The guns move in line of battery columns. If there is no possibility of surprise they may be put in front of the centre of the cavalry; if this is undesirable, they may be placed in the centre of the first line in line of battery columns."

the 2nd line, at wide intervals, but these should only be required with hastily improvised brigades and divisions. They would be useless where there is much dust (they are intended to fill up gaps in the first line, protect the inner flanks, or fall upon the enemy, should he break through the first line, before he can re-form).

In manœuvre, when cavalry is assisted by artillery, the fire of the latter must not be masked. When acting against cavalry every endeavour should be made to draw the enemy into ground favourable to one's own troops, and from the outset to force the enemy to conform to one's own movements and thus seize the initiative. A charge should be sudden, rapid to the decisive point, delivered with the utmost momentum, thoroughly in hand, with sufficient power to engage vigorously in a hand-to-hand encounter, and sufficient wind left in the horses to reap the fruits of victory, or retreat if compelled to do so. About one-third of the distance to be traversed before the actual collision takes place should be passed over at a trot, and the remainder at a gallop, except the last 50 or 70 yards, which will be at the charge—*i.e.*, the highest speed at which the squadrons can move in good order.

During manœuvre ground scouts and combat patrols will invariably be thrown out.

The commander of each line is responsible for the maintenance of an adequate system of combat patrols.

Ground Scouts.

The number of scouts employed, and the distance to which they are to go out, must depend upon the nature of the ground and the rapidity with which the force is moving. Under ordinary circumstances one man per squadron is sufficient; and, as a rule, ground scouts

should not be less than 200 nor more than 500 yards away from their squadrons.

When in the presence of the enemy ground scouts remain out as long as possible, taking care to clear the front of their squadrons immediately before the collision.

The duties of ground scouts are to ascertain whether the ground in the immediate vicinity, in front and on the flanks, is suitable for cavalry or artillery, to point out obstacles, and to indicate the best points of passage.

Combat Patrols.

All bodies of cavalry manœuvring in the immediate presence of the enemy, or when moving over close country capable of concealing an enemy, will, in addition to ground scouts, send out combat patrols to the front and flanks, and, under certain circumstances, to the rear. They usually consist of a complete section or half-section. Combat patrols will keep at sufficient distance from the troops to ensure their safety. In open country they will generally be not less than half-a-mile from the body they are protecting.

Combat patrols remain out on the flanks during an engagement, and do not, like the ground scouts, join in the attack.

Their duties are to observe and report on the position, force, and movements of the enemy, especially any attempt on his part to outflank the body from which they are detached; and if a favourable opportunity for attack or turning the enemy's flank occurs, they must give notice of it.

The guiding rule of all manœuvre is the adoption of the shortest route, the simplest movement, and the most effective direction for the attainment of the object in view.

A cavalry action will, as a rule, resolve itself into three distinct phases, viz. :—

(a) The reconnoitring phase.

(b) The manœuvring phase.

(c) The attacking phase.

The object of the leader in the *reconnoitring phase* will be to ascertain his adversaries' strength and dispositions, and, if possible, to place his own force within the limits of the manœuvring phase in a position and on ground which will be most favourable to him; he will also select positions for the artillery and machine-guns, and mounted infantry. During this phase the most suitable formation will usually be an *échelon* of three lines, 1st line in line of squadron columns, the rear lines moving in a concentrated but flexible order of formation, and taking every advantage of the ground. The commander will consider upon which flank of the guns he will manœuvre, so as to cause the enemy to mask his own artillery, and present the flank of his cavalry to the enfilade fire of the guns.

Having determined on his plan of attack, the commander will decide the moment for entering the second phase according to the strength of the force engaged.

The smaller the forces engaged the less manœuvring will be required.

The *manœuvring phase* will be entered upon in attack order. The first line and the guns must act in complete accord. The cavalry will generally manœuvre on the flank further from the guns with a view to forcing the enemy to bring up his inward flank; he may then partly mask the fire of his own artillery, and also present his flank to the enfilade fire of the batteries.

The further manœuvring will be with the object of placing the 1st line within 500 yards of the enemy, in

such a position as will ensure a distinct advantage in the attack, which will usually consist in being able to strike the enemy more or less in flank.

Under ordinary circumstances the 2nd and 3rd lines will conform closely to the manœuvres of the 1st during this phase.

A single squadron would usually enter the limits of this phase in line, a single regiment in line of squadron columns, the squadron on the exposed flank being prepared to act as a defensive or offensive flank, while that on the other flank, or part of it, may be held back in 2nd line. Thus it will be seen that with a small force the first fundamental principle, *organisation in depth*, has to give place to the second, *a strong first line*, to defeat the enemy by the first blow.

The attacking phase embraces the attack of the 1st line, supported, according to circumstances, by the 2nd and 3rd.

The 1st line breaks into the enemy, and endeavours to ride him down with the first onslaught.

The 2nd line supports the 1st:—

- (a) By enveloping the enemy's flank and rear with a portion of its force.
- (b) By opposing with the other portion (or, if circumstances require, by its whole force) the 2nd line of the enemy should it threaten the flank of the 1st.
- (c) By receiving and disengaging the repulsed 1st line.

Thus it will be seen that the best formation in which to threaten your adversary's flank is one which protects your own.

The 3rd line forms the last reserve of the division, and remains at the disposal of the divisional commander.

It should, as a rule, be in rear of the inner flank, and retain its usual distance (350 to 400 yards) from the first line until the attack is completed.

When the whole of the 2nd line becomes engaged it will open out into line of squadron columns, close up to half its usual distance from the 1st line, and be ready to bring about the decision of the fight. It must not be employed prematurely, and a portion should, as long as possible, be kept in hand to meet eventualities.

The attack of units smaller than a brigade will be conducted on the same principles.

Pursuit.

If the enemy is repulsed after the shock and *mêlée* with the 1st line, the success must be followed up vigorously by all the squadrons that have not been engaged in the *mêlée*, except the squadron of direction of each regiment, which will rally and follow in support.

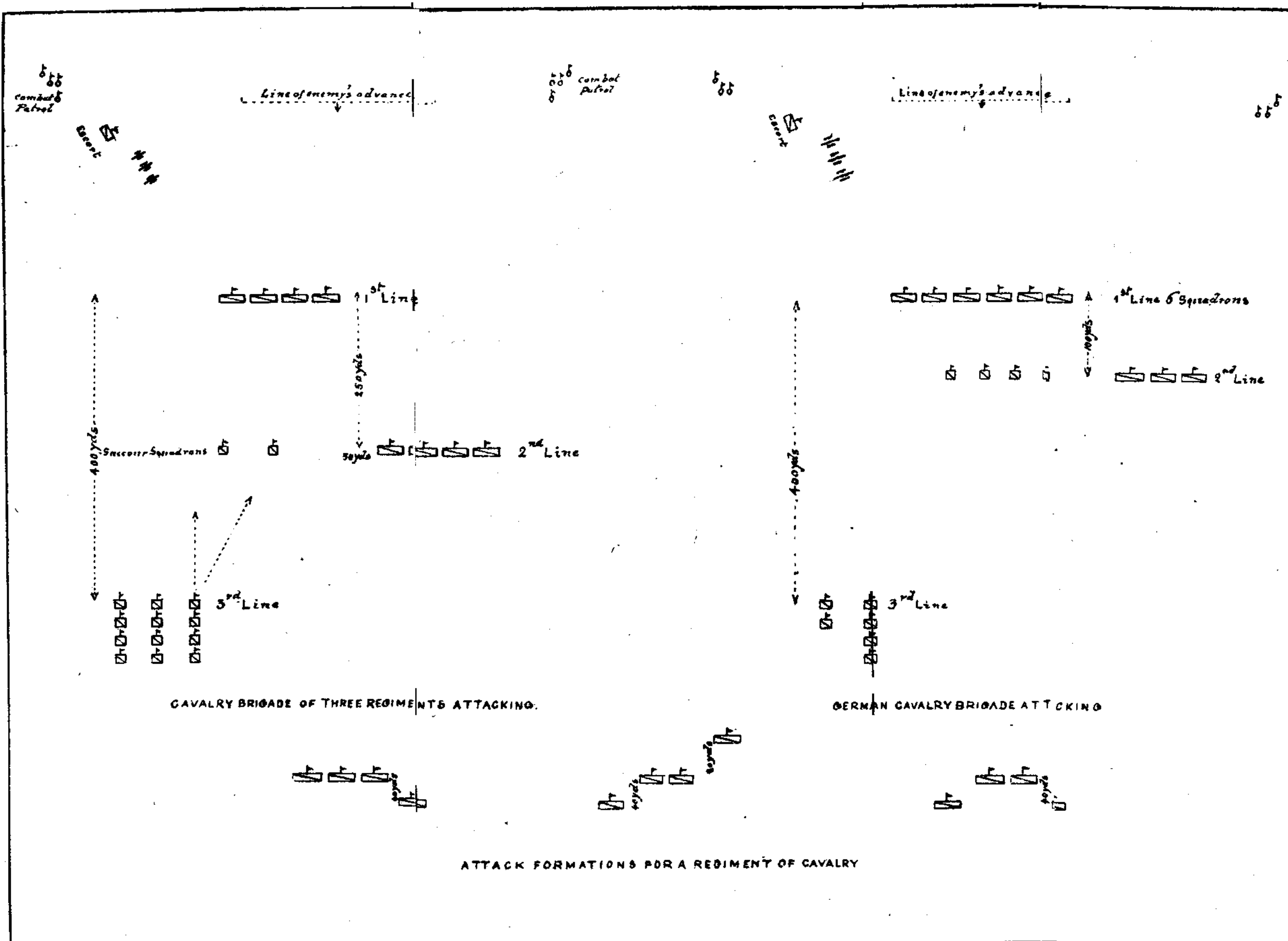
If the enemy retires before the charge, a certain number of squadrons should follow him up, the remainder following the pursuing squadrons as a compact support.

No opportunity should be allowed the enemy to re-form.

The 3rd line will act as a general reserve to the whole. The guns will fire on the enemy as long as is compatible with the safety of their own cavalry; the batteries will advance as rapidly as possible, following up the beaten enemy with their fire, and also firing on any troops that may come to his support.

Retreat.

A retreat will, if possible, be covered by the fire of the artillery and the 3rd line acting under the orders of



CAVALRY ATTACK FORMATIONS.

"The exact order of attack which should be adopted in any particular case must depend entirely on the dispositions of the enemy, and the configuration and accidents of the ground, and no fixed attack order should be laid down as normal."

the divisional general. The retiring squadrons should be careful not to mask the fire of their own artillery, and should be rallied under its cover.

Machine-Guns with Cavalry.

The range of machine-guns, when compared with that of artillery, is limited; they should, therefore, take up a position as near as safety will permit to the front rank of the enemy, and in all cases positions should be chosen for them which the enemy's cavalry can only reach with difficulty: they are to be primarily looked upon as weapons of offence, the employment of which should, if possible, be immediately followed up by a charge. In the fight of the cavalry during the preparation for the attack, machine-guns should continue their fire until the squadrons of the first line pass them in the attack. In cases in which cavalry is able to threaten the flank of infantry, machine-guns may be used with effect. If machine-guns are properly handled in well-selected positions it should be difficult for pursuing cavalry to push home its success without severe loss.

On outposts and other detached duties, as well as for the purpose of temporarily holding a position which may have been gained by cavalry, and during a retreat, their defensive action will be of the greatest assistance to cavalry. When seizing a position, detached bodies of cavalry should be accompanied by machine-guns, which will supplement the carbine fire of dismounted men. Sometimes they will largely save the employment of dismounted men both in attack and defence.

In retreat through a defile or intersected country, machine-guns can render most essential service; they can remain in action at entrance to a defile, and fall back

rapidly, when horse artillery, as a rule, would have to take up a position in rear of it.

The same applies to villages.

Mounted Infantry with Cavalry.

In all three phases of the cavalry fight the mounted infantry will generally accompany the artillery.

Both in pursuit and retreat mounted infantry will form a valuable auxiliary to cavalry.

Its greatest use will be when cavalry is called upon to operate in a close country.

The Attack of Cavalry on Infantry.

Infantry can be attacked with the best chance of success when already demoralised; when from the conformation of the ground or a misty atmosphere the cavalry can take it by surprise, when it has expended its ammunition; or when caught in the act of deploying.

The occasions on which cavalry may be called upon to attack infantry are:—

- (1) To assist its own infantry in the final stages of attack by falling on the enemy's supports and reserves.
- (2) In defence, to stop and delay the advance of the enemy's infantry under the most effective fire of its own infantry or artillery, by threatening to attack it, and cause it to close, so as to form a better target for fire.
- (3) In pursuit.
- (4) In case of reverse, to delay the advance of the enemy.
- (5) In order to hinder a deployment.

- (6) When infantry is issuing, even victorious, from a wood.
- (7) When debouching from a defile.
- (8) When it is necessary, at all risks, to gain time for the arrival of reinforcements, or for the execution of a turning movement.

When attacking infantry cavalry should be careful not to mask the fire of its own infantry and artillery.

If the enemy is in extended order or much demoralised, the attack should be in extended order, but in the case of compact or unbroken infantry a succession of regiments, wings, or squadrons in convergent directions is desirable, the successive lines at distances of 150 to 200 yards apart; or an attack in double échelon of squadrons may be employed.

If the ground does not favour concealed approach the gallop must be commenced sooner than when attacking cavalry.

If possible, infantry should be attacked on its right flank, as its fire is less effective towards its right flank than towards its left.

Infantry are apt to fire high, and therefore attacking up a slight incline is an advantage.

The main conditions for a successful attack against infantry are rapidity and determination to charge home.

Cavalry Attack on Artillery.

The most favourable opportunities for attacking guns are :—

- (i.) When on the move.
- (ii.) When limbering up or unlimbering.
- (iii.) When engaged with other artillery and beyond the reach of infantry support.

(iv.) When from the conformation of the ground or misty atmosphere the cavalry can take it by surprise.

The attack on guns should be made in extended order. The force destined to attack the escort will follow at 150 to 200 yards distance and at wide intervals.

The supporting force, whose principal object is to check attempts of neighbouring troops to disengage the guns, will follow at a similar distance.

The direction taken by each attacking body will depend on the ground and dispositions of the enemy; but they should avoid following each other directly.

As the attack line draws near the guns the flanks should be brought forward so as to make an enveloping attack, the flanks and rear of the battery being especially aimed at.

The action of Tobitschau on the 15th July, 1866, furnishes a good example of the capture of guns by cavalry, which is thus described by Colonel Hozier in his work entitled "The Seven Weeks' War":—

"On the morning of the 15th July, after General Malotki's brigade had marched on Wiklitzer Hof, Hartman's cavalry division of three brigades took post near and behind it, about Klopowitz and Biskupitz. General Hartman's three brigades were the light brigade of Landwehr cavalry, consisting of the 2nd regiment of Landwehr Hussars and the 1st regiment of Landwehr Uhlans; a light brigade of the line, consisting of the 2nd Royal Hussars and the 10th Uhlans; and a heavy, or Cuirassier brigade, consisting of the 1st and 5th regiments of Cuirassiers. As Malotki pressed upon the Austrian brigade, and it began to retire from the direction of Tobitschau towards Wieröwan, Hartman, in order to harass its retreat, formed the design of passing his

Cuirassier brigade, which formed his extreme left, over the river Blatta, and with it acting against the Austrian right flank. Some officers sent to reconnoitre found that the bridge over the river near Biskupitz was neither held nor had been destroyed by the enemy.

“When the 5th Cuirassiers had crossed the bridge and had gained the further bank, it perceived the Austrian artillery train, on the road between Olmütz and Tobitschau, which, on account of the action going on near the latter place, had been halted north of Rakodau, and appeared to be without any escort.

“Colonel Bredow, who commanded the 5th Cuirassiers, sought permission from General Hartman to attack the artillery train. This permission was accorded to him, not, however, till the Austrian artillery had noticed the Prussian cavalry. The gunners unlimbered, and opened upon the horsemen with shell, but at long range, for they saw not the 5th Cuirassiers, who were, on their own side of the stream, but the 1st, who were still near Biskupitz.

“Bredow, under cover of some undulating ground, formed his regiment in *échelon* of squadrons for the attack of the guns. The first squadron he kept towards his right to cover the flank of his attack from any Austrian cavalry which might lie in that direction, the second and fourth squadrons he directed full against the front of the battery, and supported the second with the third as a reserve.

“The squadrons moved forward in perfect lines, slowly and steadily at first; seeming to glide over the field, gradually increasing their pace, regardless of the tremendous fire directed upon them, which emptied some saddles. When within a few hundred paces of the battery they broke into a steady gallop, which increased in rapidity at every stride that brought the horses nearer to

the Austrian line. All the time of their advance the gunners poured round after round into them, striving with desperate energy to sweep them away before they could gain the mouths of the cannons. Rapid flashes of flame breaking from the mouths of the guns accompanied the discharge of the shells, which were being blurted forth with a nervous haste through the thick clouds of smoke that hung heavily before the muzzles.

“The flank squadrons, bending a little away from their comrades, made for either end of the line of guns, in expectation of finding there some supporting cavalry. The two centre ones went straight as an arrow against the guns themselves, through the intervals between them upon the gunners. The firing ceased in a moment, and the smoke began to drift slowly away. Eighteen guns, seven wagons, and one hundred and sixty-eight horses, with one hundred and seventy prisoners, fell into the hands of the Prussian force—a noble prize to be won by a single regiment.

“It lost only twelve men and eight horses, for the swelling ground and rapid motion of the gliding squadrons baulked the aim of the gunners, who mostly pointed their pieces too high, and sent their shells over the heads of the charging horsemen. Of the eighteen captured guns seventeen were conveyed to Prosnitz. One was too much disabled to be moved.”

Cavalry Detached Duties.

Under the above heading are—Reconnaissance and Screening Duties—Reconnoitring Parties—Requisitioning and Foraging—Surprises and Ambushes—Destruction of Railway and Telegraph Lines—Escorts for Prisoners and Convoys—Outposts—Advanced and Rear Guards.

Requisitioning and Foraging.

A party detailed to carry out a requisition tells off about a quarter of its strength, under an officer, to guard the outlets of the town or village, while the remainder of the party takes up a suitable position in the direction of the enemy, posting look-out men and sending out patrols.

If the object is to cut green crops, the detachment is similarly told off into a guard and a party to carry out the immediate object in view.

Surprises and Ambushes.

To carry out a surprise it is best to arrive in the neighbourhood of the enemy towards evening, take up a position under cover, and utilise the night for making a reconnaissance, and carry out the surprise after his morning patrols have returned. The order of march must be concentrated: the essential object is to approach undiscovered, and then to attack vigorously and quickly; attacks from several sides produce greater confusion amongst the enemy than an attack from one side only; on the other hand, there is a greater risk of premature discovery, and care must be taken that the attacks are simultaneous.

Against troops in billets or bivouac, the first point is to cut down the sentries, buglers, trumpeters, or drummers, overpower the guard, occupy the alarm-post, and try to seize the commander and other officers.

The place chosen for an ambush should be on the enemy's flank as a rule, and, if possible, near a defile, as he cannot be in fighting formation whilst passing through

it; it should be under cover, and near ground on which cavalry can act.

The attack on a convoy never presents much difficulty unless the ambush is prematurely discovered by the enemy's patrols; if this has not been done the fore part of the convoy should be allowed to pass, and the attack directed against the centre. If the ambush is discovered, or the enemy halts, he must be attacked at once, and as much damage done as possible.

General Duties of Cavalry on the Field of Battle.

The cavalry of an army in the field is distinguished as "The Cavalry Divisions" and "The Divisional Cavalry." The former has a more or less independent rôle, whilst the latter consists of a small force (either a squadron or a regiment) attached permanently to the infantry division.

The general duties of "The Cavalry Divisions" and of "The Divisional Cavalry," as above described, are discussed in the chapters devoted to Attack and Defence by the three arms.

Dismounted Service.

Dismounted cavalry may be employed:—

- (a) To hold localities until the arrival of infantry.
- (b) To force a defile.
- (c) To offer prolonged resistance in order to gain time during a retreat.
- (d) To support defeated cavalry, or retiring reconnoitring parties.
- (e) To check cavalry or artillery at points such as bridges or fords.
- (f) To defend cantonments, camps, bivouacs, and occupied posts.

- (g) To deceive the enemy as to the presence of infantry.
- (h) To support the mounted attack upon artillery.
- (i) The whole or part of the escort of guns, if the ground is unsuited for mounted action of cavalry, may be dismounted and act as infantry.

The following rules are laid down for cavalry dismounted action:—

- (a) Cavalry should if possible dismount out of fire and view of the enemy.
- (b) The men are not to be dismounted in any position where mounted opposing cavalry could attack them before they can remount to meet the attack.
- (c) The nearer the men are to their led horses while firing the better.
- (d) The led horses and mounted escort should not be in the direct line in rear of the dismounted men, unless there is sufficient cover to protect them from the fire directed against the latter.

CHAPTER IX.

ARTILLERY.

THE special characteristic of artillery is its long range, which now extends to 4,500 yards, although, according to Prince Kraft, no great results are to be expected until shrapnel fire becomes effective (3,000 yards). The shattering effect and the noise of bursting shells is demoralising, while on favourable ground the rapidity with which guns can be moved forward to secure important points contributes greatly to the value attached to their co-operation.

On the other hand, the disadvantages of artillery are that it requires large stores, clear weather, and a considerable amount of tolerably good ground to work on (100 guns massed in action require about a mile of frontage); it occupies a great deal of road on the march, and is costly and difficult to train and keep efficient.

Artillery commences an action both in attack and defence, and if skilfully handled very commonly finishes it.

To what extent guns should be moved forward during an action must depend on the nature of the ground and on the requirements of the infantry which it is supporting. It is wrong to leave a commanding position merely for the sake of reducing an already effective range. For artillery to advance over open ground under infantry "medium range" fire, except under cover of their own infantry, is very risky; but if a general believes that the presence of his guns in the front line will help to re-establish confidence or

confirm a temporary success, he is justified in advancing a portion of his artillery alongside of his infantry, even to within 800 yards of the enemy's rifles. When guns are thus committed to an action at close quarters, all idea of withdrawing them must be abandoned; they must either go forward, or be captured if deserted by the infantry alongside of whom they have unlimbered.

So long as guns in action have got their own infantry in front of them, they ought never to be retired unless a general retreat is ordered, and even then, some of the batteries may be worked to the last, and thus form a barrier, behind which the infantry can rally if hard pressed.

There is a considerable difference of opinion about the effect procurable from long range artillery fire, and so many improvements are being made in the construction and sighting of field guns that results far exceeding any yet realised are confidently predicted; but, the efficiency of artillery depends to such a large extent on finding the range, and on accurate shooting, and this, again, on the nature of the ground and the state of the weather, that any calculations not made on the spot are worthless.

It is the arm that has gained most by the introduction of smokeless powder, especially in defence.

The first principle of the employment of artillery is that from the earliest possible moment a number of guns superior to that of the enemy should be brought into action. This applies equally to defence and attack, and is, in fact, the application, as regards artillery, of the first principle of war.

The power of artillery depends on its fire action, which should, in order to produce its full effect, be concentrated; in order that this concentrated fire may be

intelligently directed, the batteries must be massed. Besides the fire of dispersed batteries is successive, and not simultaneous like that of the same number of guns when collected, which produces a greater moral effect in a shorter space of time.

In defence, batteries usually have to be more or less disseminated to repel attacks in different directions, but the principle of concentration should always be observed as much as possible; the fire of even a single battery well posted in a forward position may often oblige the assailants to deploy, but in attack small bodies of artillery should not push forward early in the action into isolated positions without orders, as by so doing they may interfere with the general's plan of action.

The Concentration and Distribution of Fire.

The concentration of the fire of a number of batteries on a certain portion of a line of battle, or its distribution over the whole, is a question of *fire tactics*, the solution of which is governed by the general principle that the defeat of the enemy, not one's own protection from his fire, even when on the defensive, must be the primary object; and more weight must be laid on fire effect than on cover, but the importance of the latter should be fully recognised, and every advantage taken of it, subject to the demands of the tactical situation.

Batteries in defence are often masked until the attacking infantry appears.

When engaged with artillery, the best fire effect is attained by concentrating an overwhelming fire on successive portions of the enemy's line of guns, and silencing them in detail.

When supporting an infantry attack, the fire of all the batteries, or of a large portion of them, should be concentrated on the particular part of the enemy's line which has been indicated as the point of attack.

When attacked by infantry, the fire of artillery should be distributed over the whole front of the attackers, or over any part of the enemy's attack formation. This tactical concentration or distribution of fire is obtained by the brigade division commander apportioning a greater or less extent of target to the various batteries. Concentration of fire against a part of the enemy, even when there is no superiority in strength, may often produce a crushing effect.

In order to facilitate ranging and observation of fire, a conspicuous part on the windward flank of the target may sometimes be selected to range upon: this is called the "ranging point."

When no ranging point is ordered, the fire will be distributed over the whole front of the target; when a ranging point has been ordered, the guns will be laid on that point until the battery commander gives the order "Distribute."

During the Franco-German war (1870) it was observed by the German artillery commanders, that when supporting the infantry attack on a wood, comparatively little damage was done to the defenders' troops by directing the fire of the guns exclusively on the edge of the wood. The defenders remained some distance back from the outer edge until the assailants' infantry advanced near enough to oblige their supporting artillery to cease fire; they then moved rapidly down and manned the outer edge. Since then the German method of distribution in depth when attacking woods or villages known to be occupied

by the enemy, or in searching ground in rear of cover, has been universally adopted, and is now sanctioned in the Field Artillery Drill, 1896.

Ranging is carried out on the front edge, or on the crest of the covering ground, and as soon as it is completed battery fire is continued in the usual manner; but while the right section continues to fire at the edge or crest, the battery commander orders the second section to take 100, and the left section 200 yards greater elevation and corresponding fuse. The area is thus searched to a considerable depth, but to make the fire effective the front allotted to each battery should be small.

The concentration of artillery fire on a certain point or its distribution over the whole or part of a line of battle, may be obtained in two ways :—

- 1st, By massing the batteries.
- 2nd, By dispersion of batteries.

The following advantages are claimed for the first method :—

- (1) Unity of command.
- (2) Range more quickly obtained.
- (3) Supply of ammunition easier.
- (4) Simultaneous concentration of fire.

The advantages claimed for the dispersion of batteries are :—

- (1) Worse target for enemy.
- (2) Several ranges for him to find.
- (3) Easier to find suitable positions.
- (4) Confusion avoided.

The two essentials for the effective application of fire are :—

Fire Tactics.

Fire Discipline.

By *fire tactics* is meant the selection and change of positions and of targets, and the concentration and distribution of fire in accordance with the progress of the fight. The brigade division of artillery (three batteries) is the tactical unit of artillery, and the application of fire tactics is the especial duty of brigade division commanders. When a battery is engaged singly, the battery commander is responsible not only for the fire discipline, but for the fire tactics as well.

By *fire discipline* must be understood that combination of fire qualities within a battery which enables its commander in the shortest possible time to occupy such positions, and to bring effective fire to bear upon such targets, as may be required by the tactical situation.

The unit for fire discipline is the battery. The essentials for fire discipline are the quiet, orderly, and correct performance of all duties under hostile fire—obedience during the emotions of a battle.

There are four methods of fire :—

Battery fire.

Section fire.

Subdivision fire.

Salvo fire.

Magazine Fire.

For meeting a cavalry attack at close ranges (1,000 yards or less) the following method of firing (which is called magazine fire, on account of its rapidity) takes

place, and is designed to cover the ground between 1,000 yards and case range (500 yards or less); it is not intended for use against a standing target.

When cavalry gets within 1,000 yards, section fire is commenced with shrapnell with fuses set for 500 yards.

While magazine fire is going on, all the case shot are brought up to the guns, so that they may be immediately available if required.

As there is no time to fuse shell or set fuses when cavalry have got to so close a range, it is necessary, to enable this rapid fire to be efficiently carried out, to *have ready* at least three shrapnell for each gun, with fuses set for 500 yards.

The distance at which artillery can with safety fire over the heads of their own troops varies with the range and the contour of the ground. The Field Artillery Drill Book, 1896, says: "At ranges under 1,500 yards on the level it would be dangerous to fire over friendly troops; at longer ranges on the level, infantry would be sufficiently safe at 600 yards from the guns or from the target. If the target is in a commanding position, the attacking guns, even at short ranges, can continue to fire till their assaulting infantry are close up to the enemy."

As a general guide to the comparative effect of artillery and infantry, "Zones of fire" may be defined as follows:—

Distant to medium artillery ranges, 3,500 to 2,500 yards.

Medium artillery to long range infantry, 2,500 to 1,500 yards.

Decisive artillery to decisive infantry, 1,500 to 500 yards.

The Choice of an Artillery Position.

“When choosing an artillery position three points must be considered,—viz. :

“I. It should be calculated to give full effect to the fire of the batteries.

“II. It should be difficult for the enemy to range upon.

“III. The guns should be, as far as is consistent with No. 1, concealed from view.”

“Generally speaking these conditions will be fulfilled if : —

I.

“(a) There is a clear view over the sights of the target, and of all ground on which it is probable fire may have to be turned.

“(b) There is sufficient room to work the whole line of guns.

“(c) The ground on which the guns stand is so far level that the recoil will not be excessive.

“(d) The line of front is unbroken by obstacles, and is for each battery at any rate perpendicular to the line of fire.

“(e) The ground in front is open, free from cover for the enemy and gently sloping down towards him.”

II.

“(a) The background of the battery is unfavourable to observation of fire by the enemy.

“(b) There are no prominent objects near the guns to assist the enemy in ranging.

“(c) There is in front of the guns some screen (such as a bank or hedge at a little distance), which will impede the enemy's view, while the shells of the battery pass over it.”

“(a) Use be made of natural cover, which is the best, and should be sought for rather from the configuration of the ground than from hedges or banks, &c.

“(b) Artificial cover to be constructed.” *

The different kinds of fire are :—

(1) Frontal. (2) Oblique. (3) Enfilade. (4) Reverse.

Enfilade fire is the most effective, though reverse fire is perhaps equally demoralising.

There are two methods of occupying a position :—

The direct.

The deliberate.

In the direct occupation, as soon as the brigade division commander has reconnoitred the position and given his instructions to the battery commanders, the batteries are led up and brought into action at once.

The deliberate occupation of a position should only be employed under the following circumstances :—

When surprise is possible.

When ground admits of the batteries being halted under cover, and close in rear of the position to be occupied.

When the advance into the position is concealed from the enemy.

When the range is long and the target indistinct.

Guns should not change their target if they can help it until the desired effect has been produced on it.

Changes of position are usually carried out by échelons, but if it be required to produce a great moral effect a whole line of batteries may advance simultaneously.

* Artillery Drill Book, 1896.

Artillery on the March.

The formation of artillery on the march is column of sections or column of route, according to the available width of the road.

Artillery should always march as near the head of the column as is compatible with its safety. The divisional artillery (three field batteries) follows the leading battalion of the main body of the division to which it belongs. The corps artillery (one brigade division horse artillery two batteries, two brigade divisions field artillery three batteries each) follows, if the army corps is on one road, the leading division, or, if each division is marching on a separate road, it would follow the leading brigade of the centre division. The artillery of an advanced guard composed of the three arms usually follows in rear of the leading half battalion or battalion of the main guard.

Horse Artillery with Cavalry.

In an open country, and *with a strong advanced guard*, the two batteries of horse artillery of a cavalry division might march immediately in front of the main body of the division, otherwise they should march in rear of the leading regiment of the main body.

In case of a brigade of cavalry acting alone, the horse artillery would march in rear of the leading regiment of the main body.

The ammunition wagons of horse artillery follow the main body of the cavalry at a distance of a mile.

The commander of the artillery accompanies the divisional cavalry commander during the reconnaissance of the enemy, and remains with him until the plan of action has been determined, and the approximate position for the guns chosen.

This position should be selected with a view to the most effective fire on the enemy's cavalry masses previous to the cavalry charge.

The guns move in line of battery columns. If there is no probability of surprise they may be put in front of the centre of the cavalry; if this is undesirable they may be placed in the centre of the 1st line, in line of battery columns.

As soon as the attack has been decided on, the guns are ordered well to the front on the protected flank, to a position which will give the fullest effect to the fire of the guns up to the moment of the collision, but it must not hamper in any way the freedom of manœuvre of the cavalry.

One object of the cavalry will be to draw the enemy's cavalry under the most effective fire of the guns.

The Fight.

The paramount duty of the horse artillery is to shatter the enemy's cavalry; its secondary task is to keep down the fire of the enemy's guns.

It is only when the guns become masked as to the enemy's cavalry that the fire should be directed on the enemy's horse artillery.

If the charge succeeds, the horse artillery should advance.

If the charge fails, and their position is suitable for a rallying point, they should remain in action. Provided the cavalry rally in rear of a flank, and do not retire directly on the batteries, the latter may still avert disaster.

The first line of cavalry is the protection for the guns, but horse artillery will require a small escort to protect its outer flank.

The escort moves on the more exposed flank, and patrols should be pushed to the front to reconnoitre all cover in the vicinity of the intended artillery position.

Escorts.

Guns massed in action require no special escort, as they are presumably acting in concert with the other arms; but when guns are detached and sent forward, or to a flank, they may be escorted by cavalry to protect them until the nearest infantry comes up. Cavalry escorts should move on the exposed flank, and when the guns unlimber, should take up a position rather with a view to observation in front and on the flanks than to protect the guns from being charged, as guns when in action can generally protect themselves. If a closed party of the cavalry escort be reserved, it should be posted in the rear of the exposed flank of the artillery.

Infantry escorts should always accompany guns when there is any possibility of the enemy's sharpshooters creeping forward to within effective range of them. The infantry should form a line of skirmishers, about 500 yards ahead of the guns, on the exposed flank, with supports about 300 yards behind them and the main body alongside of the guns. If mounted infantry form the escort, their horses would be with the artillery teams. If artillery is not escorted, it should always keep patrols out on its flanks to give warning and guard against surprise.

When artillery advances to support an attack, an escort may be required on the flank furthest from the enemy.

The general principles which govern the use of artillery may be summed up as follows :—

The officer commanding the artillery of a force must always take his orders from the commander of the force to which he is attached.

When selecting a position considerations respecting the effect of fire are more important than those affecting cover. The first necessity is an extensive field of fire, together with sufficient space.

Screens are only advantageous when they are from 100 to 200 yards in front of a battery.

If possible, batteries should form line beyond the reach of the enemy's fire or behind cover.

Special importance is attached to the simultaneous and sudden opening of a well-directed fire from guns which have been previously massed.

A preparatory position may sometimes first be taken up, and when this is done all preparations for action will be made in the preparatory position.

When the position is on a height the crest should not be approached before opening fire.

Batteries which come late into action should avoid, as far as possible, aligning themselves on guns or on troops, the range of which has already been obtained by the enemy. When the ground permits of their being echeloned this danger can be best avoided.

Regardless of losses the fire of batteries should be directed against that portion of the enemy's position or troops which happens, at the moment, to be of the greatest tactical importance, and the suppression of which is most likely to help their own side.

Fire should first be directed on the enemy's artillery.

When firing on infantry, unless they happen to be in columns, the enemy's firing line should be shelled.

Cavalry, unless massed, or when charging, seldom offer an adequate target.

Concentration of fire against a part of the enemy,

even when there is no superiority in strength, may often produce a crushing effect.

Guns should not change their target, if they can help it, until the desired effect has been obtained on the target on which they are firing.

No change of position should take place without the sanction of the officer commanding the body of troops to which the artillery is attached.

In the case of an encounter which develops from the column of march, the advance guard should secure time and space for the deployment of the main body. This task falls in an especial degree to the field artillery. The better this arm succeeds in carrying on the action at first without the aid of any considerable force of infantry, the better will it secure freedom of decision to the commander of the troops. The expenditure of ammunition and the rapidity of fire are at all times governed by the object of the action and the importance of the target. The selection of the projectile is the business of the battery commander.

Every battery must, under all circumstances, bring the whole of its guns into the fire position. Movements in retreat are to be begun at a walk.

Mountain Artillery.

In mountain warfare guns are always liable to surprise; they should always be escorted by infantry.

Ammunition has all to be carried on pack animals, and must be strictly economised.

When changing positions for short distances it is often quicker to move the guns by hand than to pack them on the mules.

Owing to the time it takes to pack them, mountain guns cannot remain in action as long as field guns.

Small guns capable of being carried on mules are

not intended to batter down strong places, although against troops they are very destructive.

With regard to the attack and defence of heights and defiles, the principles which govern the tactical use of field artillery are generally applicable to mountain guns; but it requires practice and experience to handle the latter skilfully in hill warfare; and it is a most important branch of the profession, especially in our service, where troops are so frequently called upon to fight in roadless and mountainous countries.

CHAPTER X.

MOUNTED INFANTRY AND MACHINE GUNS.

THE objection to mounted infantry has been the contention that it combines the defects of two arms, without possessing the highest qualities of either. This idea is a wrong one, for it rests on the assumption that mounted infantry are intended to fight on horseback.

The *rôle* of mounted infantry is to support cavalry; they should rarely precede and never charge cavalry.

Co-operating with cavalry, the *rôle* of mounted infantry will be somewhat as follows. Covering the retreat of advanced cavalry when pushed back by a superior force. Supporting cavalry by holding defiles, bridges, &c., when reconnoitring, or when taking up outposts for a force when on the line of march. Acting in conjunction with a cavalry brigade or division in the presence of an equal or superior force of the enemy's cavalry, the co-operation of mounted infantry, intelligently handled in accordance with the plans of the cavalry commander, ought to be very effective. With advanced and rear guards, and also in pursuit, the presence of mounted infantry will furnish the power of resistance which cavalry acting alone, or even in conjunction with guns, does not possess.

In the absence of cavalry for reconnoitring purposes, or when, as is so often the case in savage warfare, owing to some sudden emergency, long distances have to be quickly traversed, mounted infantry will be in-

valuable; also in the absence of cavalry to cope against the superior mobility of savage warriors.

Acting against cavalry mounted infantry should not allow themselves to be charged while mounted; if an attack is pending, they should make for the nearest cover, and endeavour to repel it with their rifle fire.

“The offensive tactics of mounted infantry will be while holding an enemy in front by the shooting of its fighting line, with its attendant support mounted, to pass the reserve quickly round so as to act upon the exposed flanks of the enemy, manœuvring from point to point in order the better to enfilade and outflank the enemy, and ultimately threaten to sever his communications in rear. If acting with cavalry, mounted infantry should have no reason to consider the probability of its flanks being in turn threatened, but in the absence of cavalry the flanks must be watched by patrols, and the supports be posted towards the exposed flanks.”*

At all times, whether supporting advanced cavalry or guns, or acting alone or in conjunction with machine guns, the effective action of mounted infantry depends upon the efficiency of its rifle fire.

Orders for a Vedette of Mounted Infantry.

- I. Immediately on getting to your post, find out the exact position of the enemy and what is known of his position and movements; also the whereabouts of your own piquet.
- II. Remember the number of your piquet, the number of your post, and the number and positions of the posts on either side.
- III. Learn the name and regiment of the commander of the outposts.

* Regulations for Mounted Infantry, 1889.

- IV. Find out as best you can the name of any villages, hills, rivers, or defiles that can be seen, and where the railways and roads lead to.
- V. Don't forget the countersign.
- VI. Take notice of a branch of a tree or anything which points towards your proper front. If possible cut an arrow-head on the tree or make some mark on the ground with stones to answer this purpose. This is especially important in stormy weather, as your horse will always turn his tail towards the wind, and it is very easy to lose your bearings.
- VII. See all you can without being seen, and look out for clouds of dust, the glitter of arms, &c. Keep your ears open as well as your eyes.
- VIII. If questioned by a superior do not lose sight of your front or relax your vigilance while he speaks to you or while you speak to him. Vedettes pay no compliments.
- IX. Allow no one except the commander of the piquet and the patrol to pass through the chain of vedettes or to loiter near it.
- X. Halt all other persons at 40 yards, wherever they have come from, and direct them to the examining post. If they do not instantly obey, open fire on them.
- XI. Challenge all persons by night, except the relief, the patrol, and your own officers, who shall be known to you by some private signal; order them to "Halt, advance one and give the parole." If necessary challenge twice then fire.

A single vedette never quits his post, unless driven in ; if surprised, he fires at once to alarm piquet.

One man at a time of a double vedette may quit his post, but only for the following purposes :—

- (a) To occasionally patrol unseen ground between the vedette posts.
- (b) In order to satisfy himself about anything suspicious or unusual which he cannot find out without going forward.
- (c) In order to make a report to the officer commanding piquet.

Machine Guns.

The *rôle* of machine guns is ubiquitous ; and, like artillery, they should be attached to brigades and to divisions, in order that the commanders may be free to employ them wherever the tactical situation is most likely to be influenced by their fire. Their most useful sphere of action is that of medium range infantry fire ; they can open a murderous fusillade at medium and short ranges. The ease with which machine guns can be kept supplied with ammunition makes them formidable at medium ranges, especially when cover for them is procurable.

Although, when firing at a fixed target, machine guns were less hindered by their own smoke than any other firearm, owing to the absence of recoil ; still, the removal of this obstruction to aiming from the other arms, is in the case of machine guns compensated for by the fact that the concealment at medium ranges ensured by smokeless powder is most important to the latter. Undoubtedly noiseless and smokeless powder will enable machine guns to engage artillery with less risk of being

quickly overwhelmed by its fire, while, on the other hand, it is hard to imagine that artillery, when once it has come into action, can cease fire and shift its position without attracting attention. A sudden pause in the bursting of shells creates the sort of silence that is bound to attract attention, even in the excitement of battle.

Machine guns ought not, however, to be expected to take the place of skirmishers, nor that of artillery.

In Defence.

In the defence of the main position machine gun fire will supplement that of infantry. They are useful for the defence of salients, where it might be undesirable to place artillery, and to protect approaches leading into the position, especially on the flanks.

For the defence of villages, woods, defiles, bridges and the approaches to any defended position, machine guns have an extended field of action.

They may be echeloned in rear of the flanks of guns in position, sufficiently far back to be out of fire themselves, still near enough to prevent by their fire the guns from being attacked in flank by cavalry.

They may be pushed forward with cavalry, and in conjunction with mounted infantry seize and hold on to positions until infantry can be brought up. While in a rear guard action, or when covering a withdrawal after a battle, they will support cavalry and manœuvre with them, without in any way attempting to assume the rôle of horse artillery.

In Attack.

Machine guns may accompany cavalry and manœuvre with them until they actually charge; they can come into action at closer quarters and quicker than horse

artillery. In conjunction with mounted infantry they may be pushed forward to drive back the enemy's advanced detachments, advancing to within infantry range of them covered by the fire of their own artillery.

Machine guns, like horse artillery batteries, are particularly suited for supporting any threatened point, or for being pushed forward to take advantage of any favourable opportunity during a battle. Such opportunities will generally present themselves on the flanks.

When the infantry advance to the attack, machine guns may accompany them, and sometimes cover by their fire the actual assault from a flank. The moment a position is captured, they can dash forward to help to hold it, or they can cover a withdrawal; in the latter case they must, if necessary, be sacrificed. In pursuit they will be invaluable for heading the enemy, and rapidly seizing bridges, &c.

Thus we see that machine guns have an important *rôle* to play in every phase of a battle, and may be temporarily attached to each of the three arms, co-operating with each as the General may direct.

CHAPTER XI.

ADVANCED GUARDS.

AN advanced guard is a portion of the main body of a marching column pushed out a limited distance to protect it from surprise. Independent enterprises on its own account are therefore beyond its province, for an advanced guard must be in touch with the main body it is covering, in order to give it warning and intervene between it and imminent danger.

The duties of an advanced guard are :—

- I. After the advanced cavalry to reconnoitre and search for the enemy in the immediate vicinity of the line of march, drive back his small advanced reconnoitring parties, and prevent the march of the main column from being temporarily interrupted.
- II. If the enemy is met with in force to cover the deployment of the leading troops of the main body, or hold him in check according to circumstances.
- III. To seize important positions, bridges, railway junctions, &c., and hold them until the main body can come up.
- IV. When the enemy is still distant advanced guards may sometimes be pushed out to support the advanced cavalry; but this is exceptional.

The strength of an advanced guard is regulated by :—

(a) The work it has to do.

(b) The character and proximity of the enemy.

Too strong advance guards are apt to become seriously engaged in a manner that may disarrange the plans of the leader of the main body. The battle of Wörth in 1870 affords an example of the chief commander's plans being subordinated to the premature engagement of a disproportionately strong advanced guard.

If an important position has to be rapidly seized and held until the main body can come up, a strong advanced guard may be necessary, but when armies are within striking distance of each other, strong advanced guards are not needed. The strength of an advanced guard varies from $\frac{1}{4}$ to $\frac{1}{8}$ of the main body it covers.

The distance between an advanced guard and the main body it covers depends on circumstances. It must not be so far as to run serious risk of being cut off; on the other hand, if it is too near the main body may be surprised.

The time intelligence is likely to take in coming in and being transmitted, and the amount of resistance that can be offered by the advanced guard, the character and proximity of the enemy, the nature of the country, the length of road occupied by the main body covered, the state of the weather, must be considered. A good rough rule for regulating the distance between the tail of an advanced guard and the head of the main column it is covering, by day, is, that it should be as far ahead of the main column as the length of the fighting troops composing the main body. At night, or in foggy weather, advanced guards are drawn in much closer, and when passing through intricate or very close country special

arrangements for keeping touch with the main body must be made.

Connection must at all times be maintained between the different parts of an advanced guard. On good roads cyclists may be used for this purpose and also for keeping up communication with the main body in rear.

The composition of an advanced guard depends on:—

(a) The work it has to perform.

(b) The nature of the country to be traversed.

Tactical units should be preserved as much as possible in forming an advanced guard.

In pursuit over an open country cavalry and horse artillery will preponderate. When expecting to meet an unbeaten enemy, or when the country is close and mountainous, more infantry will be required. The bulk of an advanced guard is usually composed of infantry. As a rule, an advanced guard should be strong in cavalry; but the proportion of each arm depends entirely on the work to be done and the character of the country to be traversed.

Engineers will often be required to remove obstructions, and make bridges, &c.

The Infantry Drill Book says: Mounted infantry attached to an advanced guard will be most profitably used in moving rapidly, to seize or hold special points, such as bridges, defiles, &c., where it may be necessary to forestall the enemy.

An advanced guard should be formed with a view to reconnoitring and resistance.

Distribution of advanced guards:—

I. Vanguard (which includes the troops forming the advanced party).

II. Main guard.

The special duty of the vanguard is reconnoitring; it is therefore chiefly composed of cavalry, supported by mounted infantry when available. A small portion of infantry is generally added in case of defiles having to be forced. Cavalry can fall back before a superior force of the enemy with comparative ease, but if infantry gets engaged it is much more difficult to withdraw it from action. Mounted infantry can support reconnoitring cavalry best by guarding its retreat in case it is driven back by a superior force of the enemy. Mounted infantry should never be used for reconnoitring when cavalry are available. It is only when very strong that guns are placed in the vanguard. A screen of scouts covering the front of a vanguard is only necessary in the presence of an enemy. The principal work of the advanced cavalry of the vanguard should be performed not by scouts, but by patrols, pushed out in front and to the flanks in the direction in which the enemy may be expected to be found. These patrols should be supported by a formed body of cavalry ready to act in any direction. The distance between the vanguard and the main guard should admit of the latter deploying before the vanguard is driven back on it, and varies, according to the strength of the advanced guard, and the nature of the country. The special duty of the main guard is fighting. It is headed by a detachment of cavalry, or infantry, sufficient to protect the guns in case the vanguard is driven back too quickly. The artillery marches as near the head of the main guard as is compatible with its safety on the road. Behind the guns march the remainder of the infantry and the engineers, followed by the ammunition, entrenching tools, and ambulance.

As every delay of the advanced guard entails a corresponding halt of the main column, the commander of an

advanced guard must drive in at once any small bodies of the enemy he meets with, whose chief object it will be to delay him. On the other hand, he must be careful not to get involved in serious aggressive operations, unless acting under the orders of the commander of the main column, whose place at the commencement of a serious engagement will generally be with his advanced guard.

The Artillery of an Advanced Guard.

The artillery of an advanced guard should not as a rule be less than a battery, and the ammunition waggons should be with the battery."

If the advanced guard is called upon to drive a small force of the enemy from a position in which he might delay the advance of the main body, the artillery should be ordered into action at once at a decisive range, as the essence of success in this case is to prevent the enemy gaining time.

If, on the other hand, the object of the officer commanding the advanced guard is to delay the enemy until the main body he is covering can come up, the artillery will open fire as soon as the enemy becomes visible, firing slowly at "distant" ranges, but holding its ground at any risk should the enemy make a serious attack.

In an advanced guard engagement which may possibly lead to a general action, it is advisable to bear in mind, when selecting the position for the artillery, that the first portion of the main body which will come up will be the batteries, and for this reason to choose a position where there will be space for the deployment of the whole. Single batteries required for advanced guards should be taken from the divisional artillery.

Advanced Guard Tactics.

The tactics of an advanced guard will depend on the instructions given by the commander of the main body to its commander.

If the enemy's reconnoitring parties are met with, every effort must be made to prevent them from obtaining information, and when small detachments of his advanced troops bar the way, they should be promptly attacked and driven in, as to cause delay will be their object. This is best accomplished by threatening to turn their flanks with cavalry, and by ordering the artillery into action at once within decisive range, meanwhile deploying the infantry as it arrives, and holding it ready to attack if required to do so.

If, on the other hand, an advanced guard is called upon to check a superior force of the enemy until the main body has time to deploy, the action should be commenced at distant artillery ranges, and the infantry kept well in hand ready in conjunction with the artillery to hold its ground till the main body comes up, or if hard pressed fall back slowly fighting. In any case the commander of an advanced guard should be most careful to keep within the limits of his instructions, and not bring about a serious engagement, if by so doing he may interfere with the general's plan of action.

There are occasions when the vanguard commander must not hesitate to act deliberately on his own responsibility, and when to wait for orders, or to obey them too literally, would lead to a fatal loss of opportunity. For instance, if a party of the enemy were observed to be preparing to blow up a bridge, they should be charged at once by the nearest formed body of troops, care being taken to tell off special men to seize the charge and disconnect it from the fuse, and at once make off with it. In this case,

even if the bridge was recaptured, it is probable that the enemy would not have a second supply of powder or gun-cotton ready at hand, and the bridge might still be kept standing. Too much stress cannot be laid on the extreme importance of the scouting which should always take place in the presence of the enemy. Cavalry or infantry scouts must be boldly pushed out, and if the vanguard performs its scouting and reconnoitring duties thoroughly, the main-guard troops ought never to be precipitately engaged with an enemy in equal force, much less if he is in superior force.

Duties of the Commander.

The commander of an advanced guard must use his discretion regarding the measures he deems necessary to take to guard the force he is covering from surprise. His place is usually with the vanguard, and his attention must be principally directed :—

- (i.) To obtaining and transmitting information regarding the enemy.
- (ii.) Taking precautions for the security of the main body in rear.
- (iii.) Making himself acquainted with the ground passed over, so as to turn it to every possible advantage in case he is attacked.

The necessity for advanced parties to show a bold front on the first appearance of the enemy should be impressed on them, and officers and men should be selected to lead an advanced guard, as much depends on their cool and soldier-like bearing on the first approach of the enemy. The leading files should not fall back until the support has been given time to reinforce them, or take up a suitable position to cover their retreat.

On meeting the enemy the principle to be main-

tained by an advanced guard is, to try and find out his strength and intentions without becoming seriously compromised, unless, in the opinion of the commander, the tactical situation demands that a bold attitude should be assumed.

When an advanced guard meets the enemy, the first thing is to ascertain what it has in front of it (*whether an advanced guard, flank detachment of a column on the march, or the outposts of a stationary force*) and where their *main body* is. The shortest and best method of ascertaining the above points is to take a few prisoners.

On any fraction of the advanced party discovering the enemy, it immediately reports the fact, and, while keeping as far as possible under cover, takes care not to lose sight of him. Immediately the leader of the *advanced party* learns the presence of the enemy, he must make up his mind quickly how he will act, according to the circumstances and the *spirit* of his instructions.

If artillery fire is heard, an officers' patrol must be sent out to ascertain the cause.

If a place is so large that it cannot be thoroughly examined by the advanced party and support, the whole of the advanced guard must be used for the purpose, a sufficient number of men being posted to secure it from surprise. *In this case the main body* must halt and take measures for its own protection until the march can be resumed with safety.

If an inhabited place is merely passed on the march, it should not be altogether left by the advanced guard until the arrival of the main body, and care is to be taken *that no intimation is sent by any of the inhabitants to the enemy*.

If the place is the termination of the march and the main body (covered) is to be halted there, it falls to the

advanced guard, after entering and examining it with due precaution, to make every preparation to ensure permanent security and to provide all requisites for information and supply.

During a march advanced guards very frequently furnish the outposts, at any rate until relieved if necessary by fresh troops.

In the absence of specific orders, the halting places for an advanced guard should be selected by its leader in accordance with the knowledge he possesses regarding the intended camp or bivouac of the main body.

The distance from the force covered should be such as to ensure it ample time to turn out, and for the most distant portions to reach the position which has been selected by the general commanding, either to fight on, or as a general rendezvous previous to advance or retreat.

March Outposts.

“During the period of daily marches and combats, outposts (furnished by advanced guards) will often have to be put out late in the day, possibly in the dark.

“The main points when taking up a line of outposts late in the day, or in the dark are:—

“(1.) Occupy all roads by piquets, and, when practical, send patrols down them.

“(2.) Send out patrols to all villages in the neighbourhood; if an enemy is near, he will either be found or heard of in the villages.

“(3) If there is a stream running along the front or flank, to occupy the bridges or fords, and patrol the banks, since the patrols cannot lose their way as long as they know where the stream is.” *

Advanced Guard in Retreat.

The special duty of an advanced guard to a force retreating is to clear the road of obstacles: any cavalry which can be spared from the rear guard will be usefully employed on the flanks, to guard against surprise by the enemy's cavalry, who may endeavour to work round the flanks and head the army in retreat. A few engineers should be attached for the removal of obstacles, and restoration of bridges, &c.

The infantry should be provided with entrenching tools, and staff officers detailed to select suitable camping grounds, rallying positions, and halting places for the army during its retreat.

The advanced guard of a division to which a regiment of cavalry and a company of mounted infantry has been attached is illustrated in Plate XI. by a diagram showing its formation on the road. A division generally requires about an hour's warning to advance or retire to suitable ground and deploy. The advanced guard of an army corps marching on a single road would usually be pushed forward about a day's march. An army corps with its trains marching on one road would under normal conditions occupy about 23 miles, but the length can be greatly reduced in cases of emergency.

An advanced guard distributed on the principles shown in the diagram guards its own flanks, and offers the smallest target to an enemy lying in ambush. Small bodies pushed forward with stronger bodies in rear can be quickly and effectively reinforced; and, if driven back, they can retire on the main body deployed to cover their retreat. The diagram shows the different arms—cavalry, mounted infantry, machine guns, infantry, artillery and engineers in the order in which they would probably be required to come into action should the enemy be encountered.

An advanced guard should be encumbered as little as possible with baggage, and second line waggons of artillery ammunition are not required, but the Artillery Drill Book expressly lays down that guns should never move forward without their waggons. A battery consists of six guns and six waggons, and a sub-section is one gun and one waggon.

On approaching a village, an advanced guard must proceed with great caution if feeling for an enemy. The advanced party and the reserve on the road should be halted at a considerable distance from the village, while strong flanking parties are sent round the outskirts to threaten the rear. A small portion of the advanced party on the road may then move on, in single files, with considerable intervals between them, followed by the rest of the advanced party as may be deemed expedient; the main body will move forward only when it has been ascertained that the place is not in the occupation of the enemy.

The head of an advanced guard must never enter a mountain pass without previously occupying the heights on either side by flanking parties. As a rule, the flanks of all objects capable of affording concealment to an enemy will be turned, and the rear threatened before the front is approached.

On coming to a hill, the flank files will first move in both directions round the base; a leading file will then ascend, to make its observations from behind the brow of the hill, and to signal to the rest of the party whether the enemy is in sight or not.

Before entering a defile, the flanks should be crowned and searched by scouts in advance of the advanced party, and some men got over to the far side as quickly as possible to any spot from which a view can be obtained.

On arriving at a river, the passages must be examined, and steps taken, if necessary, to repair broken or insecure bridges. It is most important to secure as many points of passage as possible for the troops in rear, and to indicate in good time their suitability for the several arms.

It sometimes happens that when an important and distant point, such as a bridge or a railway junction, has to be secured, an advanced guard is composed entirely of cavalry.

When war was declared by Russia, on the 24th April, 1877, and the various corps mobilized and concentrated on the frontier near Kishineff proceeded to cross in three columns, the Russian plan of campaign necessitated the seizure of the railway bridge at the mouth of the River Sereth.

On the very morning of the day when war was declared against the Turks, General Radetsky crossed the frontier at the village of Bestomak, and the same evening his advanced guard—consisting of XIth Cavalry Division, Caucasian Brigade, one regiment of Don Cossacks, and all the mountain guns—after a ride of sixty-five miles, reached the Sereth river, and took possession of the railway bridge near Galatz, on the Danube.

This seems a daring feat, but we must remember that the Russian cavalry, at that date, was armed with the short Berdun rifle and bayonet, a weapon almost equal to any rifle the Turks possessed; General Radetsky therefore considered that his advanced guard was capable of holding its own against whatever Turkish troops they might encounter. Indeed, on several occasions during this war, Russian cavalry dismounted, successfully attacked Turkish infantry, and dismounted dragoons are likely to play an important rôle in the campaigns of the future. In Continental armies

it seems to be the accepted opinion that dragoons are more serviceable and less expensive in the long-run than mounted infantry.

An advanced guard may have to seize and secure the passages of a river which the main army it is covering intends to cross. In such a case the commander would place his troops in a covering position in front of the bridges, and when doing so would consider the following points :—

- I. The security of the bridges.
- II. The nature of the ground in front of the bridges.
- III. The strength of his force.

He would endeavour to delay the enemy beyond shelling distance of the bridges. The manner in which he will dispose of his troops will be on the principle of outposts, and the more extended the position the more careful he should be not to divide his force more than necessary to watch the approaches. He would place small detachments on the roads to cover the withdrawal of his cavalry patrols if driven in, and offer the first resistance to the enemy, and concentrate the rest of his force at one or more places from whence he could support the advanced detachments, or move in any direction to oppose the enemy.

Cavalry would be used freely for reconnoitring beyond the line of advanced posts, and artillery would either be posted to command the principal approaches, or kept in a central position, from whence it could be moved to any threatened place, and bring its long-range fire to bear on the enemy and force him to deploy at a distance.

When taking up his first positions, the commander will be careful not to push out too far, but will gradually advance as his troops arrive. He will act on the defensive until the main body which he is covering, or at least a considerable portion, has crossed the river. His further action would be in accordance with ~~the~~ the instructions he receives from the supreme commander.

An advanced guard commander may often have to keep out a special flank guard, for instance, when there is a road within striking distance running parallel to his advance.

In such cases it is seldom desirable to weaken the van-guard: the troops furnishing the flank guard should be detailed from the main guard; some cavalry may, however, have to be detached from the van-guard if, as is often the case, all the advanced guard cavalry is in the van-guard.

In the case of a small advanced guard, it may be bodily transferred to a flank, and a new advanced guard sent out from the main body.

An advanced guard may be called upon to cover the debouchment of a force from a defile: in order to do this, it will take up a position in front sufficiently far out to prevent the enemy from shelling the mouth of the passage while the main body is getting out. If the flanks are accessible, and the advanced guard is weak, it will sometimes have to content itself with occupying the flanks.

In a hilly or mountainous country this is one of the most common, and at the same time important, duties an advanced guard can be called upon to perform.

PLATE IX.

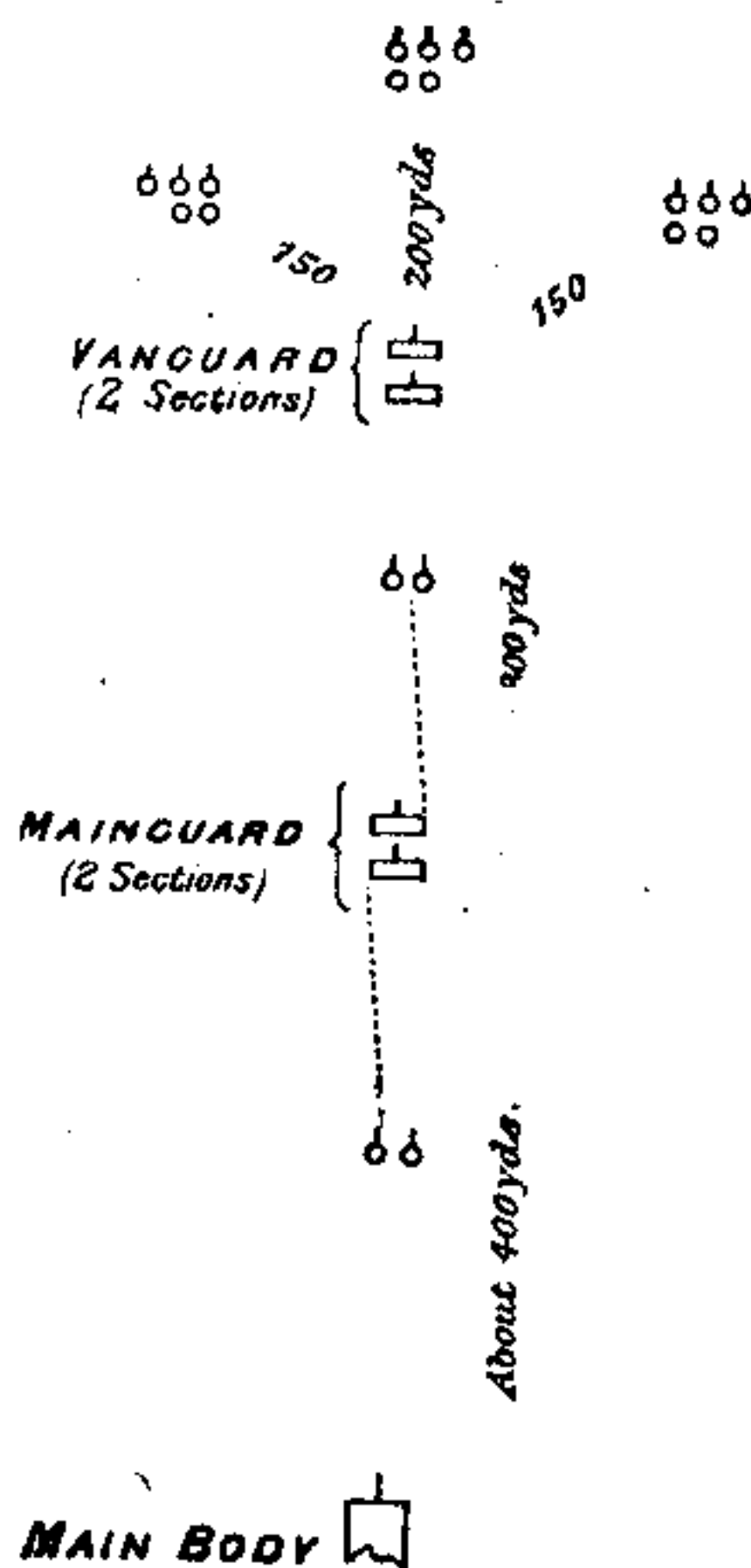
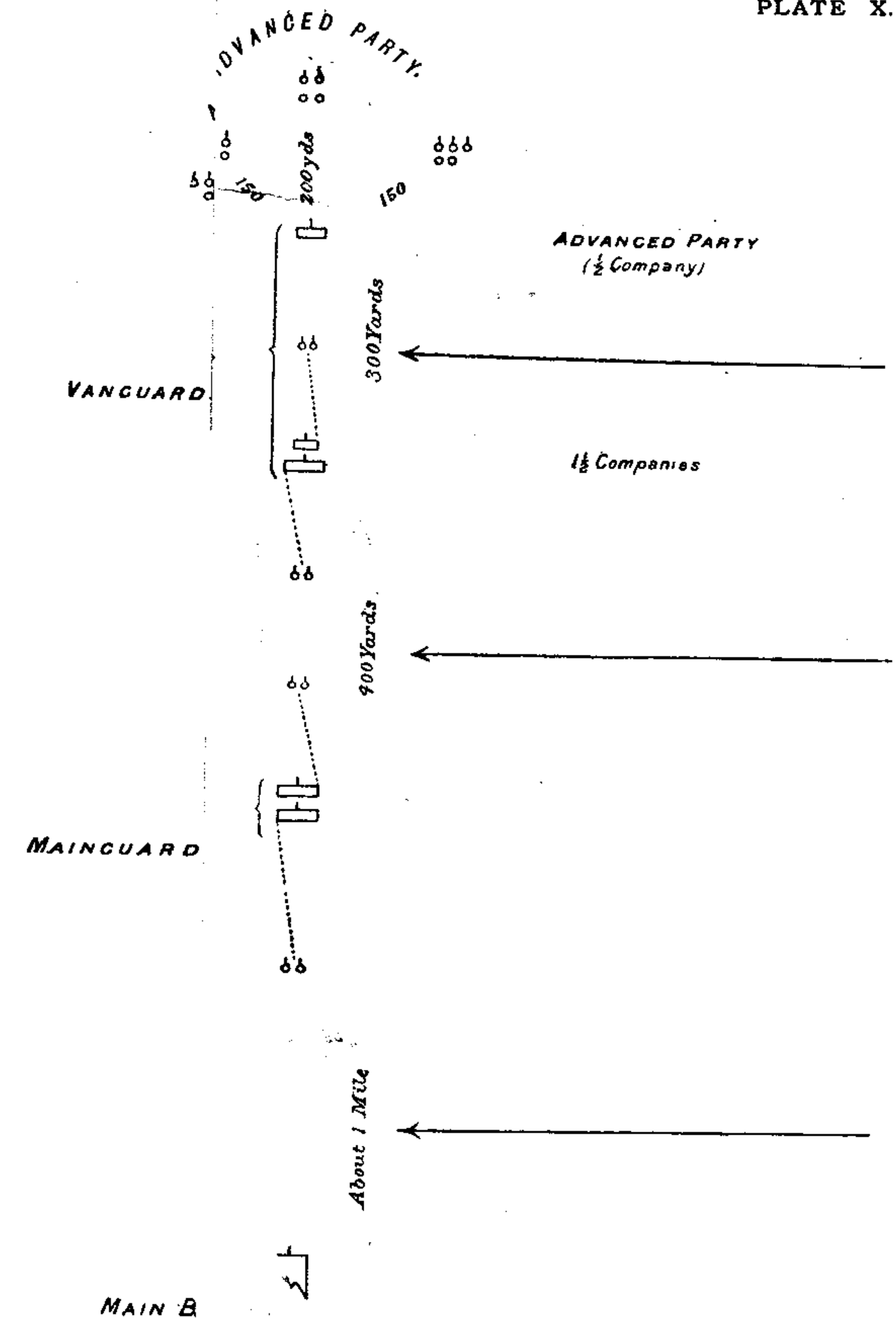


DIAGRAM OF A COMPANY FORMED AS AN ADVANCED GUARD,
ON A ROAD, AND IN AN OPEN COUNTRY



HALF-BATTALION FORMED AS AN ADVANCED
DIAGRAM OF FORMATION ON A ROAD, IN AN OPEN COUNTRY
GUARD

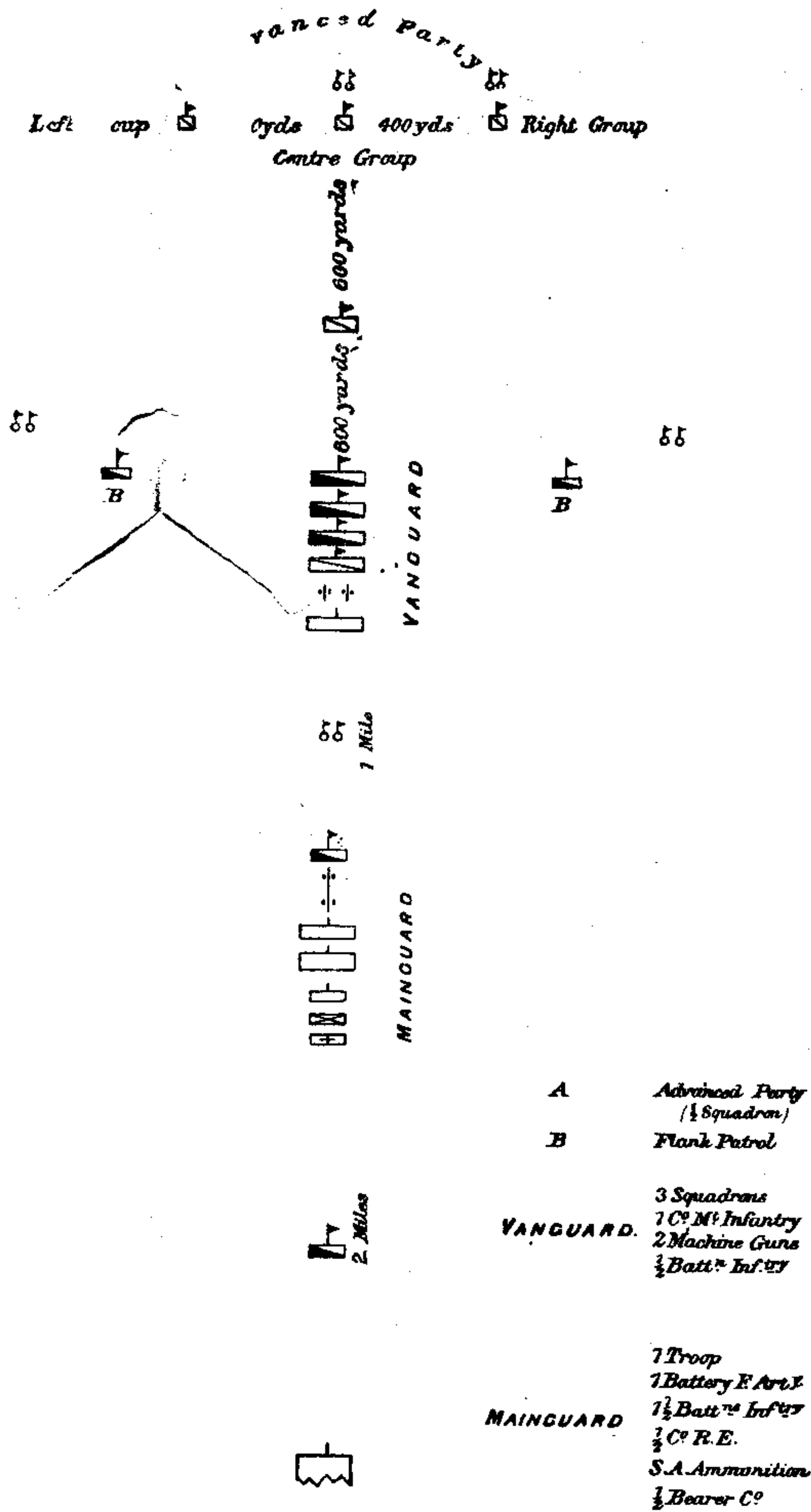
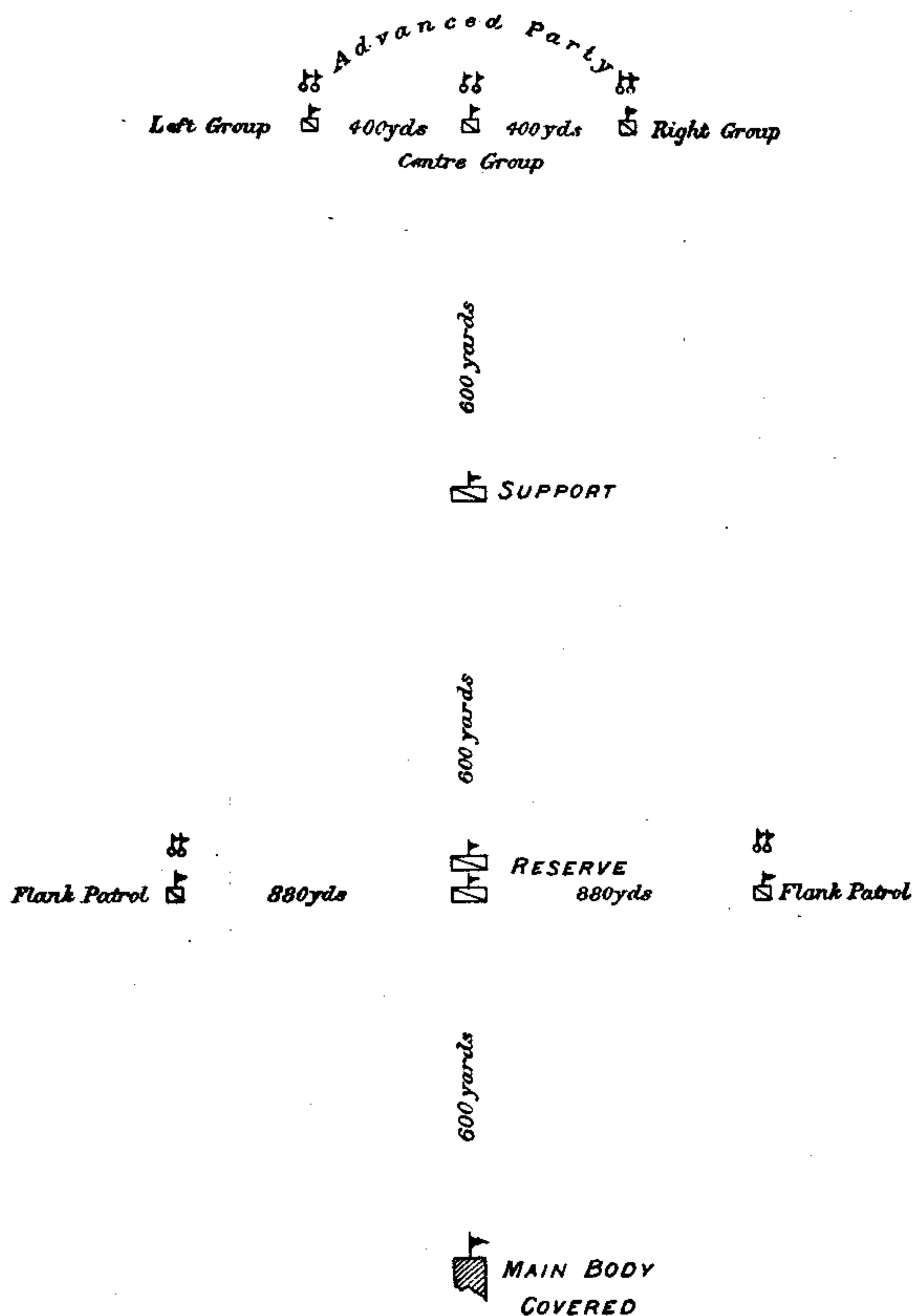


DIAGRAM OF AN ADVANCED GUARD OF AN INFANTRY DIVISION WITH A REGIMENT OF CAVALRY & A COMPANY OF MOUNTED INFANTRY ATTACHED

PLATE XII.



A SQUADRON FORMING THE ADVANCED GUARD OF A REGIMENT.

EXAMPLE I.*Descriptive of an Advanced Guard Attacking a Village.*

An advanced guard, consisting of
Two Squadrons of Cavalry,
A Battery F.A.,
One Battalion of Infantry,
comes on a village held by half a battalion of infantry
and two machine guns.

The cavalry scouts having discovered that the village is occupied by the enemy, the vanguard commander at once sends back a report to this effect to the commander of the advanced guard, who immediately rides up to reconnoitre. Having satisfied himself that, with the force at his disposal, he can carry the village, he sends word to this effect to the commander of the main body, and issues the following orders:—

“To the Cavalry Commander.—You will guard my flanks, pushing out patrols as far as you think necessary. Report any indications of the enemy being about to issue in counter attack, or of his evacuating the village. Endeavour to find out if he has any reserves behind the village. If you observe reinforcements coming up, try and ascertain what they consist of, and report to me at once. When the enemy retires watch the direction of his retreat, but do not pursue without further orders. I shall re-form the advanced guard as soon as I have driven the enemy out of the village, as my instructions are not to allow myself to be drawn into a general action with the enemy’s main body.”

Next, having decided where he means to attack, and

how, he acquaints the artillery and infantry commanding officers with his intentions, and directs the artillery officer to prepare the way for the infantry attack, and support it.

This will be best done by bringing the battery into action within decisive artillery range (1,500 yards) of the point or points at which the village is to be entered, or wherever the ground is calculated to give full effect to the fire of the guns. The fire of the artillery will be directed on the enemy's machine guns if they show, and subsequently on the barricades and houses near the places where an entrance is about to be forced. A company of the vanguard infantry will remain near the guns as escort, as long as they are in front of the main guard infantry.

While the guns are preparing the way for the attack, the infantry, hidden from the view of the enemy as much as possible, will be distributed for attack, about a mile distant from the village, unless the ground favours a nearer approach unseen. The general distribution will be greater strength opposite the place it is intended to assault, and lesser strength opposite those places where the attack is not to be pushed home. The advanced guard commander will apportion a certain part of the village about to be attacked to each body of troops, and will clearly explain to the commanders his wishes, drawing special attention to any peculiarities of ground he thinks might be turned to account during the advance, and prescribe which part of the force is to direct.

He will point out any ground that might favour the enemy in threatening the flanks of the attacking troops, and explain what dispositions are necessary to guard against flank attacks. He will also indicate the

rallying places inside the village in the event of its being carried, and will keep a couple of companies under his own orders as a general reserve. The advance will generally take the form of a combined front and flank attack. Officers commanding companies in the firing line should be careful while covering their allotted fronts not to extend more than one section until they can begin to develop an effective fire, keeping the other three sections well in hand until required. A *premature extension* is always bad. Infantry, except when demonstrating and making feint attacks, should always be distributed in depth for the sake of maintenance of command.

The artillery having made a breach, the infantry will move forward to the attack, remembering that the use of cover during the advance is subordinate to order, cohesion, and to the necessity of pressing forward unremittingly.

The commander will reinforce a successful attack with the reserve at his disposal; but in the event of a repulse, owing to the village being more strongly occupied than he anticipated, he will dispose of the reserve so as best, in conjunction with the artillery, to cover the withdrawal of the attacking companies. In the event of success the guns may be ordered to advance about half-a-mile beyond the village escorted by the cavalry, and fire on the retreating enemy with shrapnel; but, beyond this, and cutting off stragglers, there would be no pursuit.

Word having been sent back to the commander of the main body, the advanced guard will be re-formed, and the march resumed with every precaution observed to guard against surprise.

EXAMPLE II.

*(Taken from Staff College Entrance Examination,
June, 1887.)*

An advanced guard, consisting of
Seven Battalions of Infantry,
Three Field Batteries,
One Regiment of Cavalry,
One Company Royal Engineers,
is marching southwards. On reaching the junction of the
roads (*vide* plan, Plate XIII.) its commander is directed
to take up a defensive position on the open heights to
the west of the river, which is to be held to the last, in
order to give time for the main army to come up.

The enemy is advancing from the south. Time is
available for the construction of shelter, trenches, and
gun pits.

Show on the plan the distribution of the force you
propose, and give a clear explanation of your scheme of
defence.

It is not deemed necessary to throw out outposts.

Answer.

(Vide Plate XIII.)

EXAMPLE III.

An advanced guard, consisting of
One Squadron 7th Hussars,
1st Battalion Norfolk Regiment,
2nd Battalion Bedfordshire Regiment,
1st Battalion Durham Light Infantry,
1st Battalion Northumberland Fusiliers,
5th Field Battery Royal Artillery,

ANSWER TO QUESTION 6, FIRST PAPER, STAFF COLLEGE ENTRANCE EXAMINATION, JUNE 1887.

By LIEUTENANT-COLONEL T. J. R. MALLOCK, P.S.C.

PLATE XIII.

POINTS FOR CONSIDERATION OF GENERAL OFFICER COMMANDING.

POSITION.

- (1) Defensive.
- (2) To be held to the last; therefore must be
 - (a) Strongly held; i.e. defence must be concentrated;
 - (b) Flanks made secure. Main counter attack presumably left to troops in rear.

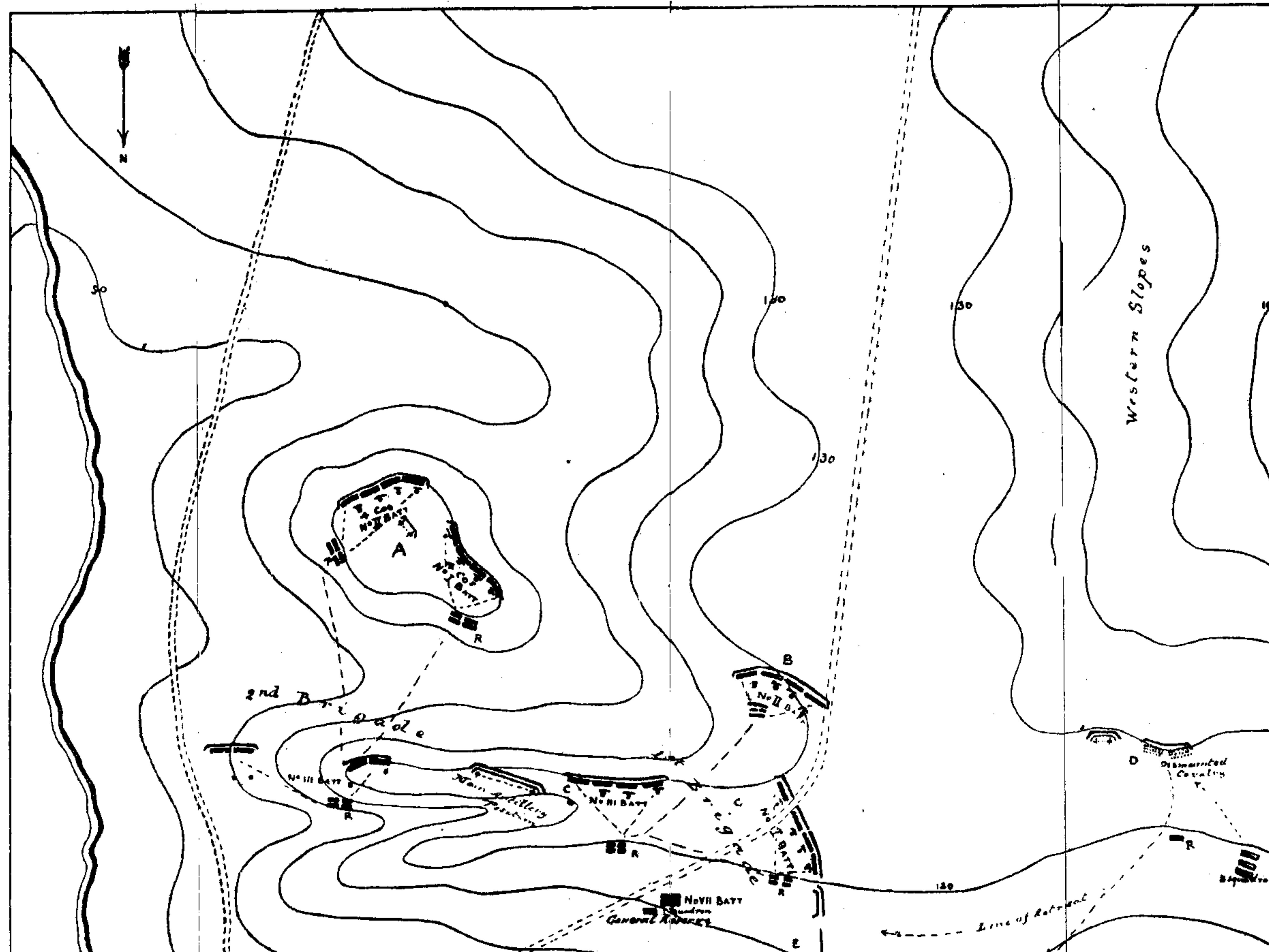
POINTS AS REGARDS GROUND.

- (1) Want of relief.
- (2) Want of cover.
- (3) Slopes suitable for manœuvring all arms.
- (4) Ridge C alone gives cover for reserves, &c., or covered communication with in position.
- (5) Knoll A hides ground south of it from ridge C and would be a strong point d'appui for enemy.
- (6) Western slopes favour attack on right.

POINTS AFTER EXAMINATION OF GROUND.

- (1) Left flank partly secured by river, but attack on this side might drive him off line of retreat.

- (2) To include western slopes in main line of defence would



POSITION SELECTED.

(See Map.)

MAIN FEATURES being:

- (a) Defence in two lines and reserve.
- (b) Strong occupation of, and forced deployment of enemy by artillery from hill A.
- (c) Support of hill A by entrenched battalion at B. A and B supported by infantry and artillery entrenchments at C C C.
- (d) Refusal of right flank. Protection of that flank by

1st. Cavalry observation.

2nd. Artillery and dismounted cavalry, fire action at D, over western slopes.

3rd. Epaulments and shelter trenches at E E.

WORK.

Shelter trenches and epaulments for shooting line, and supports at A B C D E.

Epaulments for artillery for one or two batteries at A, for three batteries on ridge C, for one battery at D and E.

is marching from the north-west, *viâ* B, towards E (see Plate XIV.), with orders to seize and cover the passages of the River Trent.

On his arrival at B, at 8 a.m. on the morning of the 15th of June, 1896 (weather clear), the commander of the advanced guard, who is marching with his van-guard, receives a report from the cavalry of the advanced party that the bridges are intact, and no enemy in sight.

How would the commander of the advanced guard act? Write down the orders he would issue, taking into account the successive arrival of his troops; and describe, with the aid of the map, the dispositions he would make to secure the passages from attack, and cover the crossing of the main army on the afternoon of the same day.

Answer.

The officer commanding the advanced guard would halt the van-guard and send back directions for the main guard to close up on it. He would then take up his stand on Fox Down spur off the road south of B, and signal for all commanding officers to come to him. While they were assembling, he would give the following verbal orders to the officer commanding the squadron 7th Hussars:—

Verbal Order.

Fox Down, 15th June, 1896.
8.5 A.M.

To Officer Commanding No. 1 Squadron 7th Hussars.

Get your squadron together and seize Stonebridge. Post half a troop to hold the bridge, dismounted, until relieved by infantry; and with the remainder of your squadron cross the river and reconnoitre Monk's Wood, Hill 912, Snow Hill, and send patrols up roads F, E, and C. Establish signal communication with Fox Down, and report to me by signal after you have personally reconnoitred from Hill 912.

This order would be carried out at once; meanwhile,

the commanding officers would have assembled, and the commander would proceed to issue the following orders and instructions to them, which would be taken down in writing by their adjutants :—

To Officer Commanding 1st Battalion Norfolk Regiment.

Fox Down, 15th June, 1896.
8.15 A.M.

Take your regiment *via* Gatstead to Stonebridge; relieve the dismounted Hussars you find there, and occupy Monk's Wood, holding the eastern, south-eastern, and south-western corners, and send one company up to the top of Hill 912.

From B to eastern corner of Monk's Wood is 7,500 yards by road—about $1\frac{1}{2}$ hours' march.

You will take with you the S.A.A. carts and mules of the Bedfordshire and Durham Regiments, and also the Brigade Ammunition Reserve under Lieut. H. Smith, Bedfordshire Regiment. The former will rejoin their regiments by the nearest route as soon as they get over the river, and the latter will be parked at Monk's, clear of the road, until further orders.

You will proceed at once.

*To the Officer Commanding Durham Light Infantry
(who is the Senior C.O.).*

Fox Down, 15th June, 1896.
8.20 A.M.

You will order 50 rounds of ammunition per man to be issued to your regiment and the Bedfordshire before the ammunition carts and mules leave to go round by Stonebridge, and then proceed with both battalions under your orders over the footbridge to Snow Hill. Send the first two companies of the Bedfordshire Regiment that cross the river to Holl's Farm, and leave one company of the Durhams at Halford Mill.

From B to Snow Hill is 4,700 yards, but you will be delayed about 20 minutes crossing the footbridge; it will, therefore, take you about an hour and 20 minutes to reach Snow Hill, where you will pile arms and await orders.

To Officer Commanding Northumberland Fusiliers.

Fox Down, 15th June, 1896.
8.25 A.M.

March your battalion, accompanied by the 5th Field Battery, across Fox Down to Thing Down, and halt just north of the letter N in the word "THING" until you get further orders.

This order applies to the officer commanding the Field Battery as well.

To Senior Medical Officer.

Fox Down, 15th June, 1896.

8.30 A.M.

The ambulance will take up its quarters at Gatstead. If we are attacked, the slightly wounded will be attended to at Halford Mill and Monks. Please make all necessary arrangements.

To Officer in Charge of Light Baggage.

Fox Down, 15th June, 1896.

8.30 A.M.

The baggage will be parked off the road near western entrance to Gatstead till further orders.

If the above orders were promptly carried out, by 10 a.m. the troops would be standing as follows :—

One troop 7th Hussars at F, E, and C respectively, patrolling the roads leading north-east, east, and south.

1st Battalion Norfolk Regiment, Monk's Wood, with one company on Hill 912.

1st Bedfordshire Regiment, two companies Holl's Farm; six companies Snow Hill.

2nd Durham Light Infantry, one company Halford Mill; seven companies Snow Hill.

1st Battalion Northumberland Fusiliers	} Thing Down.
No. 5 Battery Field Artillery	

Brigade Ammunition Reserve, Monk's.

S.A.A. carts and mules of the Bedfordshire and Durhams on the way to rejoin their battalions.

The subsequent disposition of troops to secure the bridges against attack would be as follows :—

Cavalry.

One troop patrolling F. road.

One troop „ E road.

One troop „ C road.

One troop at Holl's Farm.

Artillery.

5th Field Battery, Hill 912.

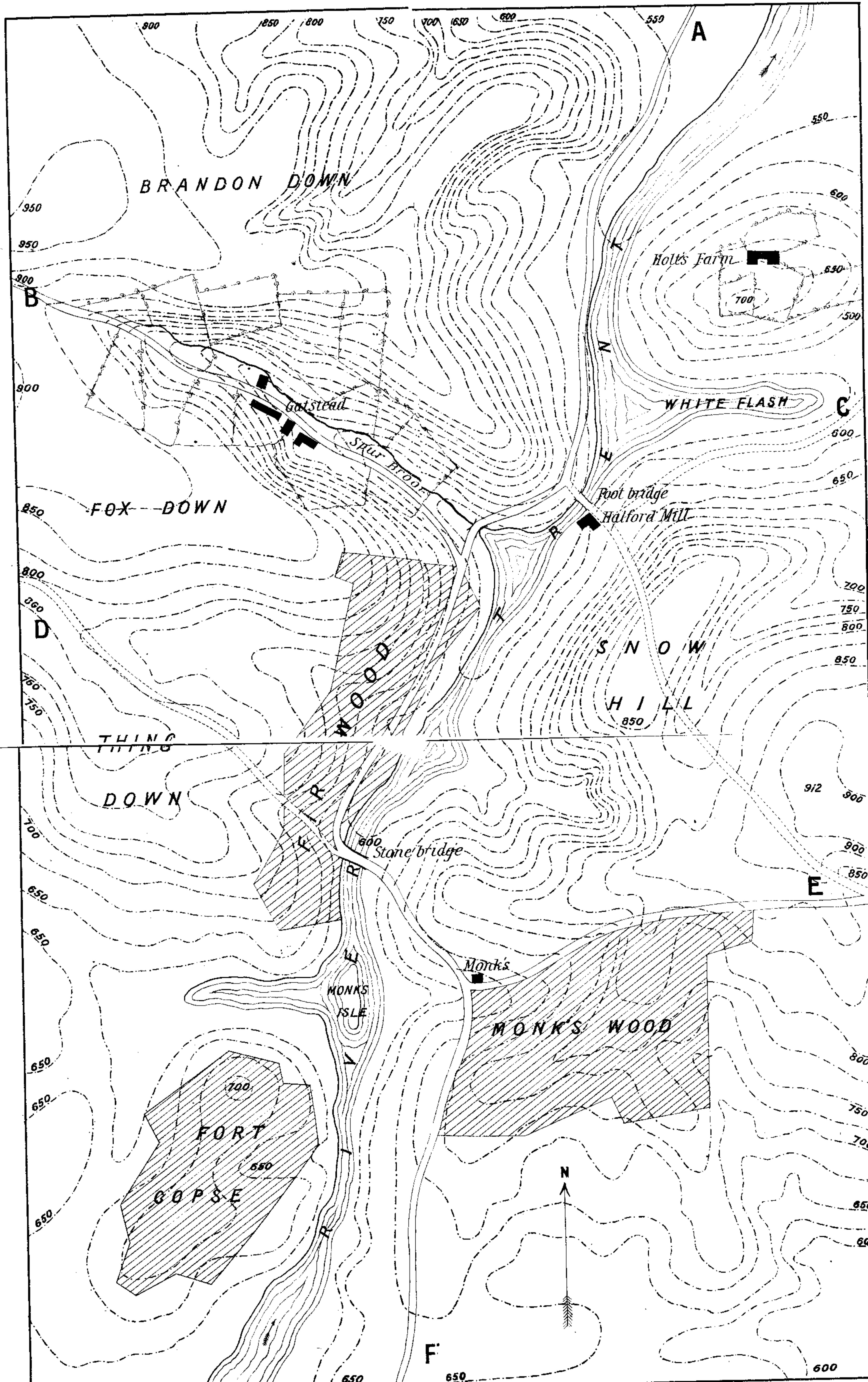
Infantry.

Norfolk Regiment	{	One company Hill 912. Three companies holding corners of Monk's Wood. Half battalion Monk's.
Northumberland Fusiliers	{	Seven companies Monk's. One company Stonebridge.
Durham Light Infantry	{	One company N.E. spur Snow Hill, en contour 700. One company Halford Mill. Six companies Snow Hill.
Bedfordshire Regiment	{	Two companies Holl's Farm. Six companies Snow Hill.

Brigade Ammunition Reserve, Monk's.

Remarks.

Stonebridge is more important than the footbridge. If the enemy did attack Holl's Farm he would be enfiladed from Brandon Down by the artillery of the main body.



CHAPTER XII.

OUTPOSTS.

OUTPOSTS are troops detached from a force when it is halted, in order to ensure its repose and safety.

The duties of outposts are: Observation, and resistance—the object of the observation being to obtain information about the enemy, and to prevent his getting near the line of piquets unobserved. The object of the resistance is attained by delaying the enemy if he advances to attack long enough to enable the main body to prepare for action, and by *repelling* his reconnaissances.

“The conditions under which these duties have to be performed are so entirely dependent on circumstances as to forbid any rigid rules being laid down, for fear that the too strict observance of them might hinder the prompt and independent action which officers and men on outpost duty are required to exercise.”*

Combined action is the principle on which outpost duties should be based, and one of the chief dangers to be guarded against is the subordination of the general object in view to the local possibilities of particular posts.

There are two systems of outposts:—

I. The Cordon or Chain System.

II. The Patrol System.

The chain system consists of sentries posted either

* Infantry Drill Book, 1896.

double or in groups, within view of each other, and is only applicable to a fairly open country, *by day*; it cannot be applied at night or in foggy weather, because it would entail too many sentries.

At night, or in a close country with numerous lines of approach, the patrol system is adopted; the supposition being that if an enemy advances to attack he can only approach by the roads or paths, which are all carefully watched by patrols, furnished like sentries from piquets posted at convenient places, the intermediate country being watched by lateral patrols moving between the piquets.

Distance of Outposts from the Position Covered.

Outposts should usually be disposed so as to cover the front and flanks of the position they are protecting, and sufficiently far forward to prevent the enemy bringing artillery *undiscovered* into any position within shelling distance of the main body.

If outposts are posted in front of a position on which an army intends to fight, they must, if attacked in force, take care not to become seriously engaged, but will fall back in good order, and as slowly as possible, so as to give time to the main body to get under arms.

The time required by the main body to turn out and occupy its position will depend on the situation of its camps, and their distance from the fighting ground, which will generally be regulated by considerations of shelter and water; but the resistance offered by outposts when falling back does not depend so much on the distance they are pushed out as on the nature of the country and its suitability either for defence or attack. Shelling distance may mean 4,000 yards, or owing to the formation of the ground it may not be reached by the enemy till he gets

within a comparatively short distance of the position the outposts are covering. If a long delay is necessary, the outposts should be reinforced, but when composed of infantry should rarely be pushed out more than $2\frac{1}{4}$ miles in front of the position the main body intends to fight on.

Outposts are sometimes posted on the selected battle ground. This happens when there is no other suitable camping ground for the main army, and it is encamped close to the position it intends to fight on, or if the ground in front offers no advantage either for observation or resistance.

For instance: A force might be encamped two or three miles south of a straight ridge, the west flank of the ridge resting on an unfordable river and gradually sloping downwards towards the north and east into an open plain.

Under these circumstances the outposts would undoubtedly hold the ridge, and would have to be strong enough not merely to delay the enemy, but to hold him if he attacks until the main body has come up.

It sometimes happens that for strategical reasons, or in consequence of defeat, the commander of an army deems it expedient to retire under cover of darkness, when the outposts may be called upon to hold their ground as long as possible to gain more time, but they must not remain fighting so long as to risk being overwhelmed. Under these circumstances the outposts virtually become the rear guard.

Selection of General Outpost Line.

The outpost line should be selected: First, with reference to the troops covered; secondly, with reference to the approaches from the enemy, the conformation of the ground, time of day, and weather. There are two lines:—

I. The Line of Observation.

II. The Line of Resistance.

In order to secure both observation and defence it is desirable to choose a well-defined line, such as a ridge, near bank of a river, or stream, or the outer edges of villages and woods, with the flanks resting on some natural obstacles. Special measures must always be taken to secure the flanks, as they are generally the most vulnerable parts. With a small force this is best done by doubling back the flank, and placing a detached post there, with particular instructions about patrolling: in the case of a large force a special detachment of cavalry and infantry should be told off to guard the exposed flank. Under all circumstances the approaches must be either occupied or watched. The surest way of obtaining early information of the enemy's movements is by the employment of cavalry patrols; the commander of the outposts will then receive notice of an impending attack in time to make the necessary dispositions.

There can be little doubt that the greater part of the object of outposts is better attained by patrolling than in any other way.

Strength of Outposts.

The following considerations effect the strength of outposts:—

- I. The strength of the force covered and the number of mounted troops available for patrolling.
- II. The character and proximity of the enemy.
- III. The configuration of the ground and the nature of the country.
- IV. The position of the main body covered and whether, if attacked, it intends to advance to the position held by the outposts, or

accept battle on a position in rear of them.

In the former case the outposts must be strong enough to hold the enemy, until the main body comes up.

V. A small force requires relatively stronger outposts than a large one, but the troops detailed for outpost duty should seldom exceed from one-sixth to one-seventh of the entire force.

VI. No more troops should be employed than are considered absolutely necessary for attaining the object in view,—viz., rest and security for the main body. This economy is ensured by selecting the best line possible under the circumstances, and assigning to each arm that portion of the line and those duties for which it is best suited.

VII. The commander of the main body decides when detailing the force for outpost duty whether supports and reserves are necessary, or only piquets.

Composition of Outposts.

In an open country by day, the enemy being beyond striking distance, cavalry can perform the duties unaided. In an open country by day, the enemy being comparatively near, cavalry in front with infantry behind them to protect their retreat, and offer the required assistance.

Enemy's outposts within rifle range, infantry only.

Close country by day, at night, in foggy weather infantry chiefly; but at all times both by day and night, unless the nature of the country or the proximity of the enemy totally prohibits their use, cavalry should be freely employed for patrolling.

With a mixed force, if the country is fairly open, cavalry can often furnish the piquets by day and be relieved by infantry at night. This arrangement is desirable when troops composing an advanced guard are called upon to furnish outposts after a long march, as it enables the infantry to obtain a certain amount of rest. When this is done, the infantry supports by day are generally made strong enough to furnish the night piquets ; by this means, in case of attack, a strong force of infantry is available, but the duty of observation is performed by the cavalry. Cavalry piquets intended for observation only can be pushed out farther than infantry, and the 800 yards limit between them and the infantry supports is not applicable; in fact, the further the piquets are out the better, provided they can get back. A squadron can furnish four piquets and watch about four miles of front, or, when cavalry is acting alone, a squadron can furnish two piquets, and a support forming a section of cavalry outposts.

When only a few cavalry, from half a troop to a troop, are detailed to each section of outposts, they are intended for patrolling and orderly duties only, and not to furnish piquets.

Continental armies use cavalry for outpost duty much more freely than we do, both by day and night.

In the absence of cavalry, especially in savage warfare, mounted infantry may be employed for reconnoitring and patrolling duties. Cyclists are very useful where the roads are good, especially at night, as their movements are so silent.

The relative proportion of either cavalry or infantry, and the method of employing them, depend on whether reconnoitring and observation, or resistance, is called upon to play the most important rôle.

If cavalry and infantry are employed in the line of observation, the cavalry should be on the flanks of the infantry.

Artillery can only be used with outposts in the case when the force to which it belongs is in the immediate neighbourhood of the enemy. Even under these circumstances the proportion of artillery will be very small, being limited to a few guns, which are needed for the defence of some well-defined approach.

Artillery acting with a line of outposts should always, *if the outposts are intended to retire and not hold the ground*, be withdrawn before it is exposed to infantry fire; its extrication might otherwise embarrass the action of the main force. When outposts are posted on the position, artillery will, of course, be at hand to repel attacks.

Strengthening the Line of Outposts.

“The strengthening of piquet posts should as a rule be limited to the construction of slight, or utilization of existing defences as best ensures.

(a) Cover from view and fire of enemy.

(b) A clear field of fire without exposure of piquet.

Communications between the several portions of the outposts must always be secured, so as to enable them all, in case of attack, to act in concert.

“When a stand is to be made the ground in front may be obstructed, and the front of the enemy’s attack should be narrowed as much as possible by blocking-up roads, defiles, bridges, and all approaches which are not required by the force; and if a force encamps for any length of time in one place, the outpost line should be

strengthened by abbatis, redoubts, fortified houses, and villages." *

Positions of the Different Portions of Outposts.

Outposts are usually divided into three portions :—

(a) Piquets with Sentries.

(b) Supports.

(c) Reserves.

It rests, however, as before stated, with the commander of the main body whether reserves or even supports may be dispensed with.

In small forces the main body usually takes the place of the reserve, and is encamped close to the selected position it intends to hold. The piquets and supports should, if possible, be furnished by the same battalions.

The Infantry Drill Book gives the approximate distances between the component parts of outposts to be used as a guide in the selection of positions for each :—

Sentries	...	100 to 400 yards in front of piquets.
Piquets	...	400 „ 800 „ „ supports.
Supports	...	400 „ 800 „ „ reserves.
Reserves	...	1 to 2 miles in front of main body.

The first positions taken up by outposts are only tentative, and are liable to alteration as the ground becomes better known, and within the limits of the distances above stated the configuration of the ground and the requirements of mutual support will fix the actual positions of the various portions of outposts.

It is very important that the primary disposition of

* Infantry Drill Book, 1896.

troops, both in attack and in defence, and also on the line of march, should be as far as practicable in conformity with the generally, accepted principles of battle, and only in exceptional circumstances should a commander find himself committed to action of any kind without having made provision in his first distribution not only for supporting his fighting line, but also for the changes and unforeseen contingencies which are almost certain to take place.

In fact, it is hardly too much to say that the secret of success lies in the judicious husbanding of troops in rear of the first line. This rule applies to outposts especially, as they are liable to be attacked by overwhelming numbers, and, without compromising their own retreat, must always make a sufficient stand to afford the necessary protection to the main body while turning out. "Never place troops where you cannot support them," is a well-known maxim of Napoleon's.

Duties by Day and by Night.

Observation with concealed resistance is the principle on which outpost duty should be performed by day. The observation is carried out by sentries or vedettes, supplemented by patrols and detached posts. The resistance is offered by the piquets and supports; any portion of the piquet line may be reinforced by the supports, or the piquets may be ordered to fall back on the supports, who, in their turn, may if necessary retire on the reserve.

Should the attack be a reconnaissance in force, the piquets, aided if necessary by the supports, should always endeavour to repel it; but if the enemy is advancing to attack, the duty of the outposts will be to delay rather than to arrest his progress.

By day the principal work of outposts is observation; at night the sense of hearing must take the place of seeing; observation is not possible, therefore concealment is not necessary to the same extent as by day; all sentries and piquets should maintain their posts as long as possible. At night an enemy's advance, except in very open country, must be confined to roads and tracks; these should, therefore, be *occupied*, together with any bridges or fords near the outpost line.

Standing patrols of cavalry which correspond to what are called "listening-posts," with infantry may be pushed out to a considerable distance.

By day the actual positions of the piquets are regulated by those of the sentries; at night the piquets regulate the positions of the sentries, the bulk of whom are withdrawn and utilised as patrols.

Outposts at night should not be drawn back from the front unless for some adequate tactical reason, such as to hold the junction of roads or paths; on the contrary, on hilly or undulating ground, sentries should be placed below the crest on the *enemy's side*, so far down as not to be visible against the sky line. When possible, high ground should be maintained for greater facility in seeing and hearing.

Outposts get under arms *an hour before daylight*, and resume the day positions as soon as it is light and it has been ascertained by means of patrols that all is quiet in front.

Alterations in the disposition of the outposts for night-work should be arranged during daylight, and be carried out after dusk.

Cavalry piquets are usually withdrawn at dusk, though cavalry patrols may be employed with great advantage at night as well as during daylight.

Knowledge of the ground confers great advantage on the defenders of a position at night; this applies to piquets as well as to larger bodies of troops.

Commander of the Outposts.

The commander of the outposts may be the officer who commanded the advanced guard when troops are marching, or another specially detailed. When a force is stationary the outposts are relieved as a general rule at daybreak. It may be advisable to have a permanent commander of the outposts. "All the troops on outpost duty are under his orders, and he is responsible for the security and repose of the main body. He will, according to the size of his command, establish his position with the reserve or support, or in a central position when a *piquet line only* is formed.

"When the outpost line is considerable, it should be divided into *sections*; about three miles may be considered a suitable section for cavalry on open ground, and from one to one-and-a-half miles for infantry.

The commander of the outposts receives instructions from the staff of the main body as to what is known of the enemy; as to the general line to be taken up by the outposts; as to how long he is to resist the advance of the enemy, and in what direction he is, if necessary, to fall back.

"In default of information or specific instructions, he decides on the disposition of the troops entrusted to his command."*

Having, after personal reconnaissance or by the aid of the map, formed his plans in accordance with his general instructions, the commander of the outposts issues his orders on the following points.

These, or at any rate the most important of them, should be communicated to the outposts before they march off.

- I. Information regarding the enemy and country in front.
- II. The approximate lines to be taken up by the piquets and supports, by day and by night.
- III. Division of the line, if of considerable extent, into *sections*, and detail of commanders thereof, and the allotment to squadrons, battalions, or companies, as the case may be, of the limits of their *frontage* and *responsibilities*.
- IV. Dispositions in case of attack, and when necessary with regard to advance or retreat.
- V. Reports when to be furnished and where sent.
- VI. Orders regarding patrols, cavalry and infantry, having regard to the country and the character and proximity of the enemy.
- VII. Measures for securing the flanks.
- VIII. Measures for strengthening posts, blocking up roads, destroying bridges, opening up communications.
- IX. Whether fires may be lighted, and special arrangements for cooking.
- X. Special orders for patrols. Hour at which cavalry piquets are to be withdrawn. The time the outposts will be relieved.
- XI. Arrangements for keeping up communications, either by signallers or orderlies.
- XII. Orders respecting inhabitants, as to the reception of deserters, and flags of truce, and the position of examining guards.
- XIII. Number of cavalry soldiers to be left with

each infantry piquet (usually two to four), and whether to be employed for patrolling as well as communicating.

XIV. Which piquets are to be composed of cavalry and which of infantry.

XV. From which flank the piquets are to be numbered (usually the protected flank).

XVI. Where he is to be found.

XVII. The countersign.

XVIII. The hour at which the outposts will be relieved.

Commander of a Section of the Outposts.

When outposts are divided into sections, the section commanders are the responsible assistants of the commander of the outposts, and in accordance with his instructions superintend the posting of the piquets and supports, and the duties connected with them in their respective sections; issuing such orders as they deem to be necessary.

The duties of a commander of a support are :—

I. To make himself thoroughly acquainted with the ground in the vicinity of his post, so as to be able to handle his men with confidence in the dark; he should also study the ground between his support and the piquets with which it is linked, and also that between the support and the reserve.

II. To arrange with the piquet commanders as to his plan of action, in the event of the piquets falling back on the supports; or how the support will act if it moves up to assist the piquets.

III. If it is arranged that the piquets are to fall

the best way to retire, so as to clear the front of the support when extended.

IV. To place himself in communication with the officer commanding that portion of the reserve which is in rear of his support, and arrange the lines of retreat to be followed when the piquets and supports retire on the reserve.

V. To see that connecting sentries repeat signals.

Commander of a Piquet.

The commander of a piquet having received his general instructions from the commander of the outposts, or of the section of the outposts to which his piquet belongs, as to its frontage and the general line to be taken up, as to the amount of resistance to be offered, as to the situation of detached posts, examining guards, and special directions for patrolling, &c., marches off to his allotted ground preceded by scouts. On reaching the general line indicated for the sentries, he should halt his piquet, selecting a spot where it is hidden from the view of the enemy. He then pushes forward a few scouts and carefully selects the positions for his sentries, and decides whether he will post them in groups or in pairs, taking care to ascertain personally that each post fulfils, as far as obtainable, the requirements of a good sentry post,—viz.,

A good view to the front and flanks.

Concealment from view of enemy.

Non-liability to sudden attack.

At night the power of seeing against the sky line.

Having posted his sentries he calls in his scouts, and posts his detached posts, if he has any. An examining post should be placed in the general line of the sentries on a road or path, and should furnish a sentry. Having posted his sentries (by day) he can fix definitely the

place for his piquet, which should be selected with a view to supporting the sentries, patrols, and detached posts.

He then divides his piquet into reliefs, and makes his arrangements with regard to patrolling, carefully explaining to the patrols how far they are to go out and the direction they are to take both going out and coming back.

Having piled arms, he posts a sentry over the arms, and also any connecting sentries or look-out men that may be necessary, and breaks off the piquet.

He next examines the ground in the vicinity of his post, takes steps for strengthening it within the limits of his instructions, ascertains the distance of prominent objects within range, blocks up roads leading towards enemy and not required to be used, obstacles the front of places where it is intended to make a stand, communicates with the piquets on his right and left and with his support, and arranges with the officer commanding the support for a combined plan of action in the case of attack from any direction, either by day or by night.

He is responsible not only for the safety of his post, but for that of the force covered. Without harassing the men needlessly, he must set an example of vigilance and allow nothing to escape his notice. He arranges for the relief and visiting of sentries, and frequently visits them himself, and occasionally goes out with an important patrol, taking care to hand over the command of the piquet before leaving it. If attacked by day he will usually reinforce his sentries and then act according to circumstances, taking care to cover the withdrawal of any detached posts and patrols he may have out.

His subsequent action will be in conformity with the

general instructions he has received and the movements of the piquets on his right and left. The officer commanding a piquet takes down in writing all orders he receives, so as to be able to hand them over to the officer who relieves him. All information obtained is to be sent at once to the officer commanding the outposts.

A report should show :—

- (a) From what piquet or post it emanated.
- (b) Date and time of despatch.
- (c) Source of information, and whether apparently reliable.
- (d) If the enemy has been seen, the particulars of his force.

Flags of truce and deserters will be dealt with in accordance with the orders received.

Piquets are allowed to take shelter provided there is easy means of egress ; fires are not to be lighted without permission. Piquets get under arms an hour before day-break, and patrols should be sent out at dawn. When relieved, piquets should not fall back further than the line of support until the new piquets have taken up all their posts. When all seems quiet in front the piquets and supports march back to camp.

Sentries.

Sentries when posted double are relieved from the piquets, and in trying weather, either hot or cold, the men composing the reliefs, when not on sentry-go, have the benefit of any shelter secured for the piquet.

Groups of sentries consist of three, four, or six men posted together and furnishing their own reliefs.

The advantages claimed for this system are :—

- (i.) The sentries by day need only be posted single.

(ii.) It gives confidence to men in exposed situations.

(iii.) Saves the fatigue of relieving sentries from piquet.

A non-commissioned officer should be placed in charge of two or more groups.

A sentry must be told the direction of the enemy, the front he is to watch, the position of the sentries on his right and left, the position of the nearest examining post, the names of all places within view of his post, where the roads lead to, the situation of detached posts, the directions patrols are to take, that he must keep a sharp look-out for cavalry orderlies and patrols coming back from the cavalry advanced posts, the countersign, that his duty is to see and listen without being seen or heard, and that he is to report the result of his observations ; that he is not to allow anyone not on duty to pass by his post without directing him to the nearest examining guard. Any person who disobeys is to be shot. Otherwise, a sentry should be told not to fire unless satisfied that the enemy is advancing in some force. The best men should be selected for the most important posts. It should be impressed on sentries that, although they are more or less isolated, they will be promptly supported. At night sentries are generally told to fall back quietly to their piquets when they have ascertained that an attack is impending.

Visiting Patrols.

With young or untried troops, and also in bad weather, sentries are visited hourly by a N.C.O. and two men, termed a "Visiting patrol," and furnished by the piquet. In their rounds the visiting patrols communicate with the sentries of the piquets on the right or left, thus

establishing lateral communications throughout the entire chain of sentries. If a piquet has a front of 800 yards, its two visiting patrols will during their tour of duty (24 hours) cover about 25 miles, which gives about 12 miles to each.

Reconnoitring Patrols.

In addition to sentries, who are stationary, and to the visiting patrols, a piquet will furnish small parties called reconnoitring patrols. These patrols, preceded by scouts, are sent out beyond the sentry line to such a distance as may be deemed expedient. Within reasonable limits reconnoitring patrols should push on until they are stopped by the enemy. Mounted troops should, if possible, be detailed for this duty. Mounted troops patrolling under certain conditions might push on as far as ten miles from the army; infantry from three-quarters to one mile.

Strong Patrols.

"The object of strong patrols is to ward off the enemy's reconnoitring parties, or to dislodge him from his posts and ascertain, if possible, what is behind; they should therefore, when stratagem fails, act on the offensive; they are usually furnished by the supports or reserve. They should rarely be pushed forward more than a mile, and in most cases should be accompanied by a mounted orderly, who could quickly convey the information acquired to the rear. Strong patrols are also sent out before daybreak. These patrols must always proceed with caution, as they may fall in with the enemy's columns waiting for daylight to make the attack. In such a case a bold charge will generally prove successful."*

* Infantry Drill R. 1. 1864.

Detached Posts.

Detached posts are piquets on a small scale, usually placed to guard some road on an exposed flank; or to hold a village or height situated some little distance in front of the sentry line. Detached posts are sometimes placed to maintain communication between piquets if lying unusually far apart, as may frequently be the case when the intervening ground from the enemy's side is unapproachable; in such a case a piquet might not be deemed necessary. Detached posts consist of from six to twelve men under an officer or N.C. officer.

Examining Posts

are small parties detailed from piquets to examine all persons approaching the outposts and decide whether they shall be permitted within the lines, made prisoners, or turned back. These parties should be posted on roads in front of their piquets. The commander of the outposts decides when and where examining posts are to be established. They are usually posted in the general line of sentries, and furnish a sentry.

Reserves,

if employed at all, usually consist of from one-third to one-half of the entire force detailed for outpost duty.

Their mission is to reinforce the supports and piquets when they are unable to offer the required amount of resistance; and as compact bodies of fresh troops well in hand, to afford rallying points for those in front, and at all times connect them with the main body they are covering.

In exceptional circumstances—if, for instance, a flank is exposed, and some of the piquets and supports are in danger of being cut off—a portion of the reserves

may make a counter attack. Reserves are usually posted in a central position, but may sometimes be divided with advantage. As a rule the reserve should be posted about two miles from the main body, and always out of sight of the enemy.

Cavalry Outposts.

If cavalry only furnishes the outposts, it must, by means of dismounted men, barricades, &c., endeavour to furnish the element of resistance usually provided by infantry.

Whenever the outposts are composed of a combined force, the infantry should furnish all stationary posts and leave the reconnoitring and patrolling duties to the cavalry.

In an open country, by day, the line of *observation* and *information* may with advantage be entrusted to the cavalry, and, in many cases, it may be advisable to push cavalry as far forward as possible; but if driven in, it should be able to fall back on infantry.

A cavalry piquet varies in strength according to the number of vedettes and cossack posts it has to furnish, but it should rarely exceed 30, of which at least one-third should be told off for patrolling.

Vedettes and Cossack Posts.

In ordinary country, in fair weather, vedettes can be posted about half-a-mile apart. They are posted either double or single, according as they are relieved from the piquet, or by "cossack posts." The latter system consists in posting the reliefs for each single vedette close to him. Cossack posts are suitable for situations when it would be difficult to relieve a vedette or when a vedette can-

not be seen from his piquet post 300 to 600 yards in rear. When posted necessarily near a wood or village; vedettes should be some little distance beyond the edge.

Signals.

“If a vedette wishes to attract attention, he holds up his head-dress” as a signal. If he sees cavalry he circles to the right; he circles to the left for infantry, and describes a figure of eight for a combined force. In the case of cossack posts, a man would ride in to the piquet to report. Circling should not be employed without urgent necessity, as it disturbs the rest of the whole outpost force. If suddenly attacked, a vedette fires.

Some positions, from their nature, do not require outposts. Such was Plevna, a town surrounded on three sides by heights, and on the fourth side by a river. The defenders at Plevna occupied these heights with their fighting line, and thus did away with any necessity for outposts. Although they pushed forward their defences down the slopes towards the enemy, those entrenchments were manned by troops under the direct control of the commander-in-chief, and thus were in no sense outposts.

If a river line is to be watched by outposts, the piquets should be posted in rear of the bridges, with only sufficient sentries pushed across to give ample warning of the enemy's approach, on the principle that all defiles should be defended in rear, unless liable to be out flanked.

Obstacles.

Villages, streams, hills and woods are features of the country that require special consideration on the part of an officer charged with the duty of posting his sentries and piquet. Woods, in particular, vary in size

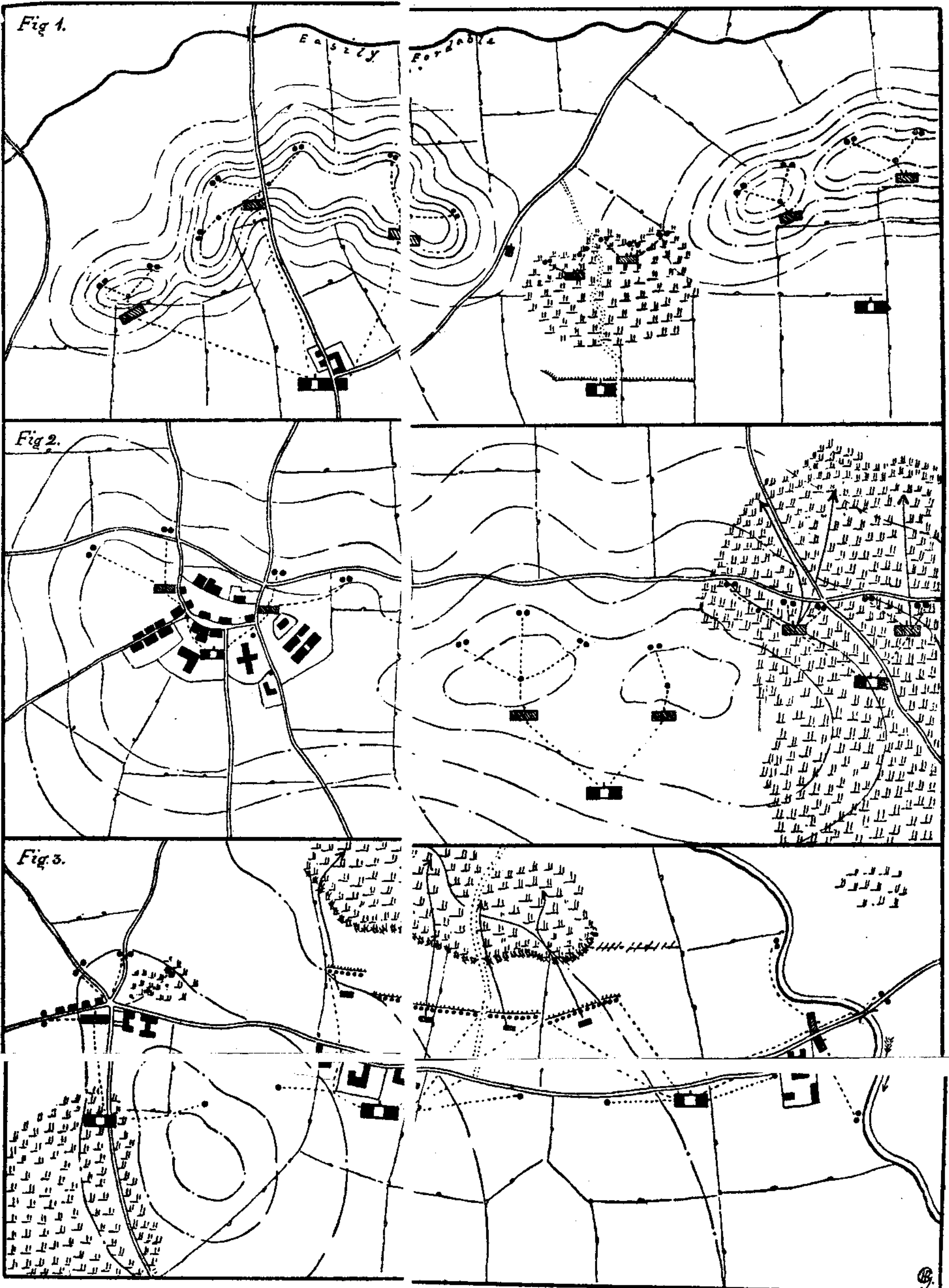
and shape, and as their existence in the neighbourhood of a sentry line is always productive of anxiety to those responsible for the security of troops from surprise, we will deal separately with the three kinds of woods usually met with under these circumstances.

1st. The small wood, the "outer" edge of which is within 200 or 300 yards of the general line of sentries.

In this case the sentries are either advanced or withdrawn to occupy its outer edge, and the piquets are brought into the wood and posted near them. So favourable an opportunity as that offered by defending the outside edge of a wood for a certain time, against an enemy advancing over the open, should never be lost, provided that the general retirement of the whole of the outpost line is not compromised by a too prolonged resistance. (*Vide* Plate XV., Fig. 1.)

2nd. The wood partly within and partly beyond the general sentry-line.

In this case advantage should be taken of any natural clearing, such as a stream, ravine, or path running through the wood, more or less in conformity with the general sentry-line of the outposts, to post the sentries along the near side of it; but they must not be advanced beyond two or three hundred yards to seek such a position, or they become isolated and liable to be out-flanked. If no natural defensive line exists within these limits, a clearing of some sort must be made to conform with the general line of sentries. The sentries are then posted along the near side of it, and their piquets, as in No. 1, brought close up to them. The portion of wood stretching beyond the sentries must, however, be constantly searched by reconnoitring patrols. If the enemy is active, recon-



THREE ILLUSTRATIONS OF WOOD S THAT MAY COME INTO THE SENTRY LINE.

Scale 3 inches to the mile. Contours 20 feet vertical interval.

the wood, in addition to those from the piquets. (*Vide* Plate XV., Fig. 2.)

3rd. The wood the "inner" edge of which is more than 400 yards from the general sentry-line.

Such a wood must either be held by a strong detached party (at all times a dangerous expedient) or the sentry-line should be advanced and posted about 300 yards from the near side. In this case sentries and piquets are posted together and *entrenched*. The near side (inner edge) of the wood must be entangled by cutting down the trees in order to delay the enemy issuing from it, and thus to keep him under the fire of the piquets. This kind of wood is very dangerous, and frequent patrols must be sent into it, both from the piquets and the supports, to explore the wood for a considerable distance. (*Vide* Plate XV., Fig. 3.)

Plate XVI. is an illustration of a battalion of infantry acting as the outposts of a division, an example which is in conformity with the system of outposts promulgated by the "Drill Book." The outposts cover the remainder of the division encamped behind the heights between, and slightly in the rear of, the hamlet of Conway and Ridgway Farm-house.

READING OF MAP.

Scale about 3 inches to 1 mile; contours 40 feet; river Tone unfordable; river Dee fordable with difficulty.

For the sake of clearness, the sentry-line is indicated approximately.

Nos. 1 & 8 companies furnish the piquets and supports on the flanks.

No. 1 company gives a strong piquet, No. I., at Conway Park, and provides it its own supports.

No. 8 company furnishes two piquets, Nos. VIII. and IX., at Lee House, and at the hill to the left and due east of the position; and retains half a company in support of them.

No. 2 company furnishes two piquets, Nos. II. and III., at Conway Bridge and Hope Bridge.

No. 3 company gives two piquets, Nos. IV. and V., at Wish Bridge and Hurst Bridge.

No. 4 company gives two piquets, Nos. VI. and VII., at Vale Bridge and Dee Mill.

The first main resistance line of the outposts is the piquet-line

No. 5 company is in support of Nos. II. and III. piquets.

No. 6 company supports Nos. IV. and V. piquets.

No. 7 company supports Nos. VI. and VII. piquets.

The second main resistance line is clearly indicated on the map, and also the lines of retreat for the various portions of the outposts. With such a strong line of defence (a river) no reserves are considered necessary. The right flank of the "position" is evidently the weaker, and most liable to be attacked. The left flank, in addition to being much more open, is protected by the river Dee within rifle-range of Ridgway Farm and the heights behind it.

Example II.

"An infantry brigade having encamped on Tiptree Common (see Plate XVII.), between "White's Mill" and "The Copses," is ordered to throw out an outpost line extending from Dunn's Bridge on the right to Dunby House on the left, so as to watch the approaches from Norton, Marsden, and Thorpe. Show on the plan how you would dispose the necessary sentries, piquets, and supports (a reserve is dispensed with), and calculate the number of men you would require for the purpose." *

Answer.

As the brigade has crossed the River Vale it may be assumed that if attacked it will stand to fight on the position marked A—A-facing to the north.

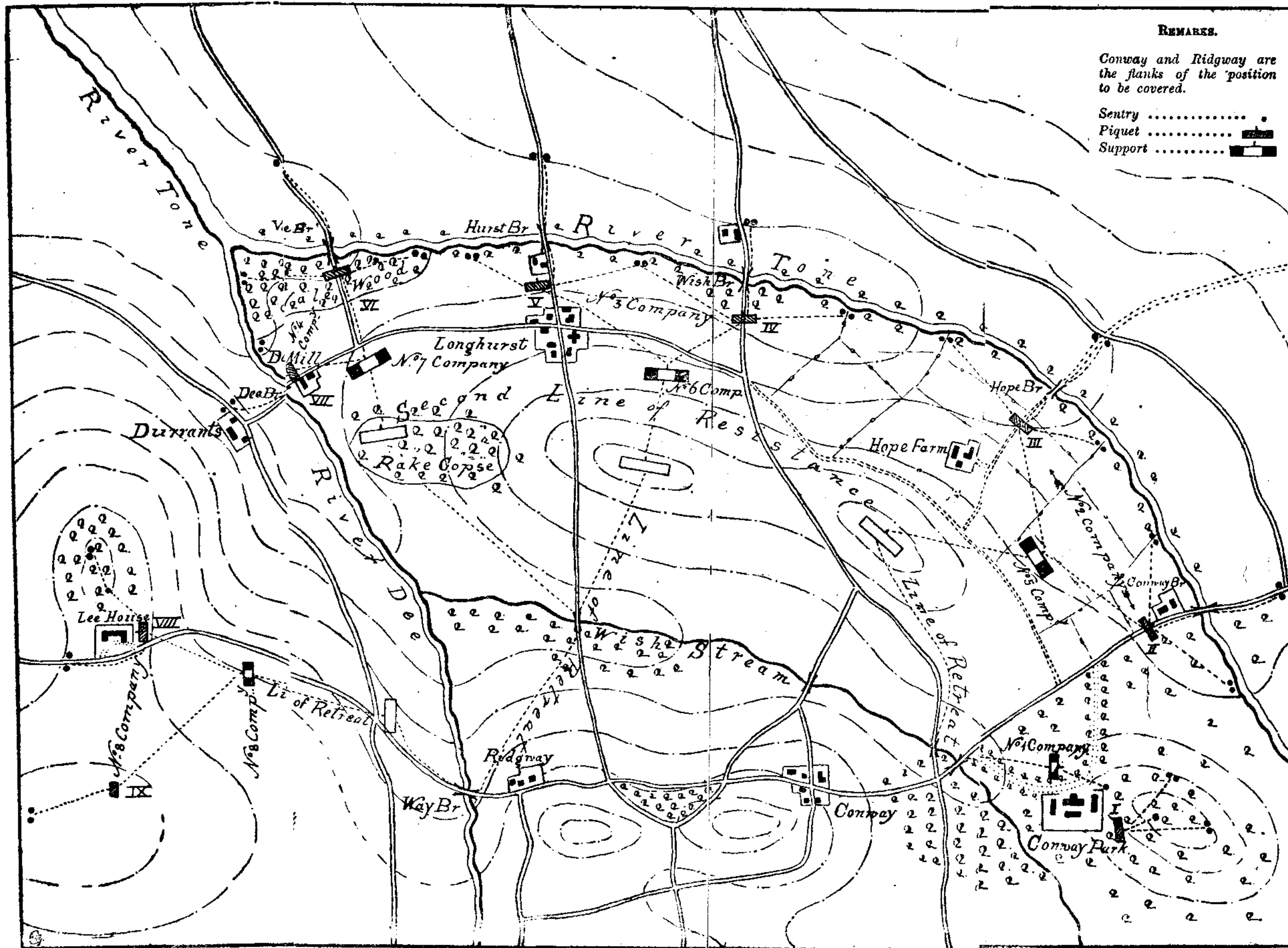
Half a battalion, consisting of four companies, each 100 strong, is detailed for outpost duty, and is disposed of as shown on the plan.

* R. M. C. paper, Junior Division, December, 1891. This example introduces the three cases of woods.

REMARKS.

Conway and Ridgway are the flanks of the position to be covered.

Sentry
Piquet
Support



DETAIL OF PIQUETS.

	I.	II.	III.	IV.	V.
Double sentries	6	6	18	6	—
Groups of sentries	3	—	6	—	—
Sentry over arms	3	3	3	3	3
Connecting sentries	—	—	—	—	—
Detached posts	—	12	—	—	—
Examining guards	6	6	—	—	6
Visiting patrols	4	4	6	—	4
Reconnoitring patrols	28	19	17	16	12
N.C. officers and resistance.....					
Total.....	50	50	50	25	25

REMARKS.—The examining guards each furnish a double sentry. Positions of piquets the same for day and night duty. Detached Post at West Lynn and group in centre wood withdrawn at dusk, and these places frequently patrolled.

DETAIL OF SUPPORTS.

No. I. Support half of No. 1 Company.

No. II. „ „ No. 2 „

No. III. „ „ No. 3 „

No. IV. „ „ No. 4 „

No. IV. Support is linked with Nos. 4 and 5 piquets.

Example III.

“ Post on the accompanying map (Plate XVIII.) a line of infantry piquets with the necessary sentries, &c., to cover the ground from A to B by day, showing the routes to be taken by the different patrols. Give in writing the reasons for your dispositions, and the following details :—

(a) The strength of each piquet.

(b) The number of sentries.

(c) The orders for the patrols.

The main river is not fordable.*

* Examination for Promotion, Lieutenants, November, 1892.

Answer.

As the strength and intentions of the force covered is not mentioned, nor the proximity or character of the enemy, it is only possible to consider the ground in front within the limits of the map.

Reasons for Dispositions.

The piquets are posted on the near bank of the main river, which is unfordable, and of the stream, both of which offer a good line of resistance. The principal work of observation will be performed by the patrols. The piquets are numbered from the left, which is the protected flank.

Nos. I. and II. piquets are full strength, because they have to provide so many duty men in addition to guarding main avenues of approach.

The river being unfordable and marshy between Nos. I. and II. piquets, the intervening ground is watched, by day, by two small detached posts.

Hew Copse is a strong point of appui for the enemy, but the outer edge is too far for an infantry piquet to be pushed out over the river; it is therefore held, by day, with a detached post.

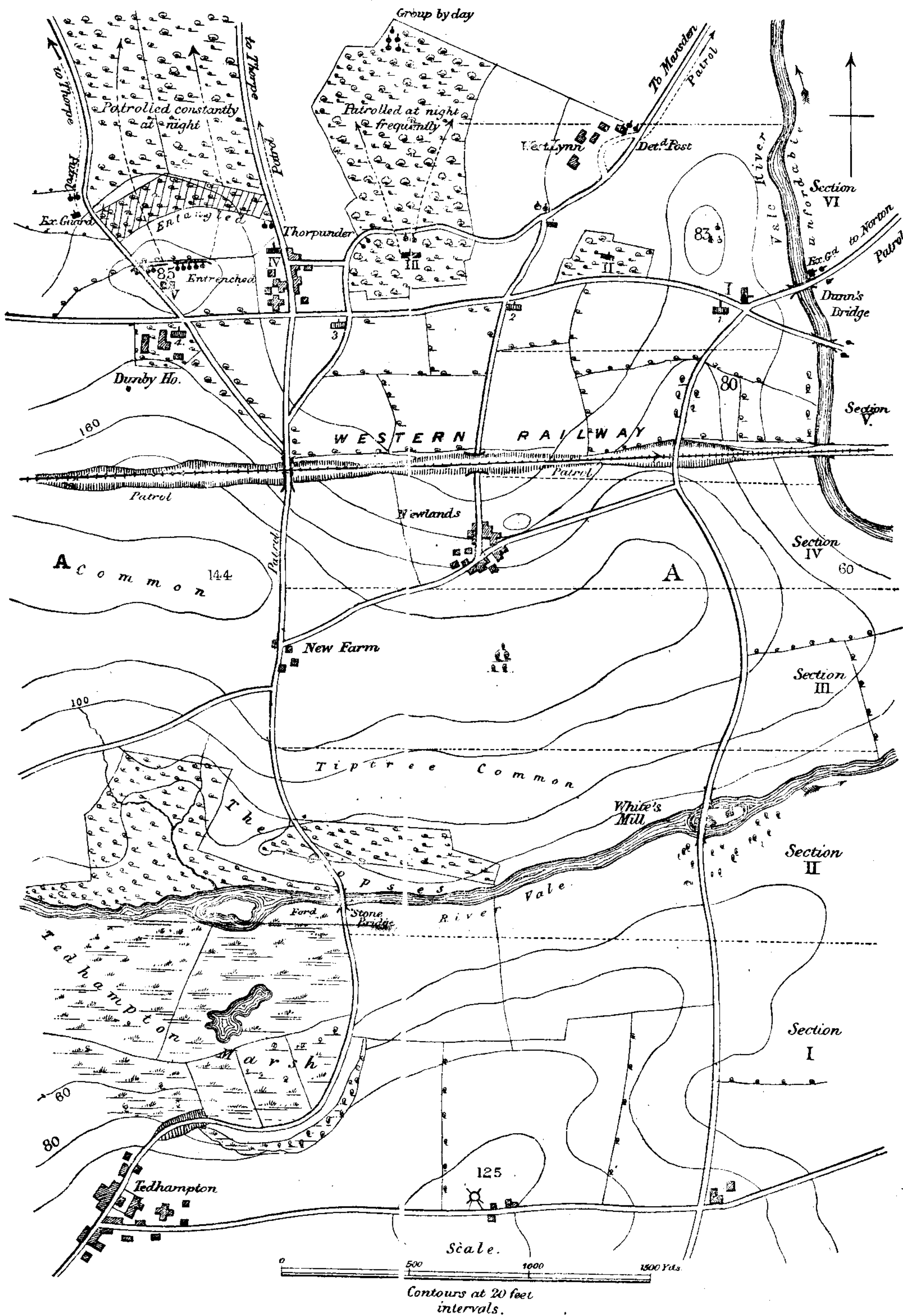
Both No. I. and No. II. piquets furnish examining posts and patrol as shown on the map.

Nos. III. and IV. piquets are each half a company, 50 strong. Although the ground in front of them favours the enemy's infantry attack, being highly cultivated, they have very few duty men to provide and they have no roads to guard. These piquets send out patrols as shown on the map.

No. V. piquet is full strength; it is on the exposed flank, and is posted so as to command the ravine, and

OUTPOST EXAMPLE II.

Plate XVII



Outpost Scheme Hqs. & Co. Supports

furnishes a detached post and a group of sentries, besides patrolling as shown on the map.

The distribution of the half-battalion detailed for outpost duty equalises the possibility of resistance to be offered by all the piquets. The piquets, with the exception of No. IV., which might entrench itself, are all concealed from the view of an enemy approaching from the north.

DETAIL OF THE STRENGTH OF EACH PIQUET, NUMBER OF SENTRIES, &c.

	I.	II.	III.	IV.	V.
Double sentries	12	6	12	12	6
Groups	—	4	—	—	6
Sentry over arms	3	3	3	3	3
Connecting sentries	3	3	—	—	3
Detached posts	12	18	—	—	6
Examining guards.....	6	6	—	—	—
Visiting patrols.....	6	6	4	4	6
Reconnoitring patrols	58	54	31	31	70
N.C. officers and resistance					
Total.....	100	100	50	50	100

REMARKS—No. II. Piquet furnishes two detached posts, one 18 strong north edge of Hew Copse, the other 6 strong to keep up communications with Heathley.

Orders for Patrols.

Visiting patrols, to go out at the hours indicated by the commanders of piquets, communicate with the sentry of the next piquet on the exposed flank, march cautiously in rear of line of sentries, test the vigilance of the sentries, ascertain if they have anything to report, or want assistance to examine some object or place in the vicinity of their posts, communicate with detached posts, examining guards, and groups of sentries, and bring back any prisoners detained by sentries to officer commanding piquet. Report themselves on return to piquet.

Reconnoitring patrols, sent out during the daytime,

should be told to get to a place from whence they can obtain a view of the country beyond that commanded by the sentries ; they should be told to march very cautiously, preceded by scouts ; by day they should avoid main roads and inhabited places, and move under cover as much as possible, and return to the piquet by a different route if possible. They should be cautioned to conceal themselves on the first approach of the enemy, and endeavour to obtain information regarding his movements, number, &c., by stealth. They should abstain from being aggressive unless specially ordered to be so, with some definite object, such as the capture of a prisoner. If the enemy approaches in force near the outposts a patrol should fire to give the alarm, but not otherwise.

If two friendly patrols meet they do not challenge, but get under cover, and inform each other what each has seen.

Example IV.

“A column advancing from Hook on Cronchal (see sketch Plate XIX.) has reached North Wanborough and Odiham. Four companies of infantry and a troop (24 sabres) of cavalry are detailed to secure it for the night towards the east. State in detail how they should be distributed, and also mark (as far as practicable) each party on the accompanying sketch.” *

Answer.

As the outposts are to be disposed for night duty the patrol system is applicable. The force of cavalry detailed is small, but as the roads are numerous in the direction of the enemy the cavalry must be used for patrolling as well as orderly work. The force detailed for outpost duty is

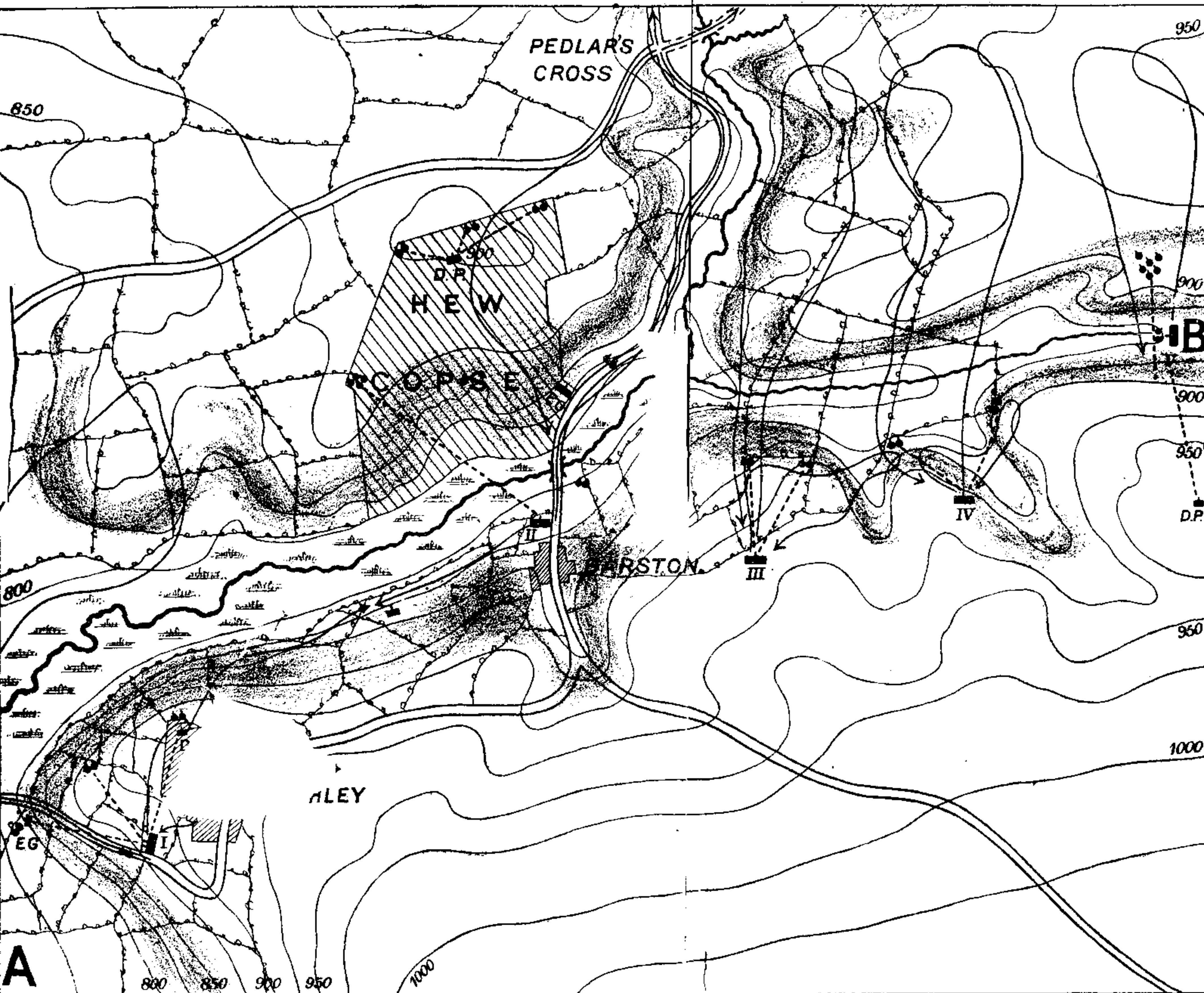
* Lieutenants' Promotion Examination, November, 1891.

OUTPOST SCHEME No. III.

EXAMINATION FOR PROMOTION, LIEUTENANTS, TACTICS, NOVEMBER, 1892.

Plate XVIII.

By permission of H. M. Stationery Office.



small, but a portion of the main body is close at hand; for these reasons a reserve may be dispensed with.

Examination of Ground.

Odiham, situated on northern slope of Colt Hill, partly protected from east by a spur running out in a northeasterly direction. If attacked the force at Odiham would occupy this spur with its right flank resting on the cemetery. Odiham is further east than Warnborough, consequently if guarded on the east Warnborough is protected also towards this direction. The Basingstoke Canal is an obstacle on the north of both villages, but very close to them. The roads leading east are numerous, and must all be patrolled and guarded. Odiham Wood, although north of the canal, would be the place for the enemy to collect in under cover of darkness. The stream to the east of Odiham Wood is an obstacle which should be taken advantage of. There is fairly good lateral communication between the road leading to Cronclal on the north and the bridge over the stream east of Odiham Wood.

Points after Examination of Ground.

The canal must be watched, Odiham Wood held, all the roads leading east patrolled, a good line of retreat marked out for isolated piquet and support north of canal. Piquets pushed out to occupy the highest contour towards the east. Assumed that the bridge over the canal at point 265 is held by a detachment provided by the portion of main body at Odiham, otherwise, No. III. support must have a half-section to cover the retreat of itself and piquet. The piquets are numbered from the

DETAIL OF PIQUETS.

	I.	II.	III.	IV.
Double sentries	12	—	6	6
Groups	—	6	—	—
Sentry over arms	3	3	3	3
Detached posts	—	—	—	12
Examining posts	—	6	—	—
Visiting patrols	4	4	4	4
Reconnoitring patrols	31	31	37	25
N.C. officers and resistance				
	50	50	50	50
Troopers attached	4	4	4	6
Total.....	54	54	54	56

REMARKS.—The troopers attached to the piquets are for patrolling. The examining post furnishes a double sentry. The lateral patrols are constant.

DETAIL OF SUPPORTS.

No. I. Support consists of $\frac{1}{2}$ No. I. company with 2 troopers attached.
 No. II. " " of No. III. " " " "
 No. III. " " of $\frac{1}{2}$ No. IV. " " " "

Example V.

An army corps is encamped as follows:—

Two divisions at Milowitz (see Map A) and one division at Stracow, with a brigade of cavalry at Klenitz.

One brigade of infantry and a regiment of cavalry are detailed for outpost duty, to cover the position "Ob Cernutek"—Bor Hill towards the east.

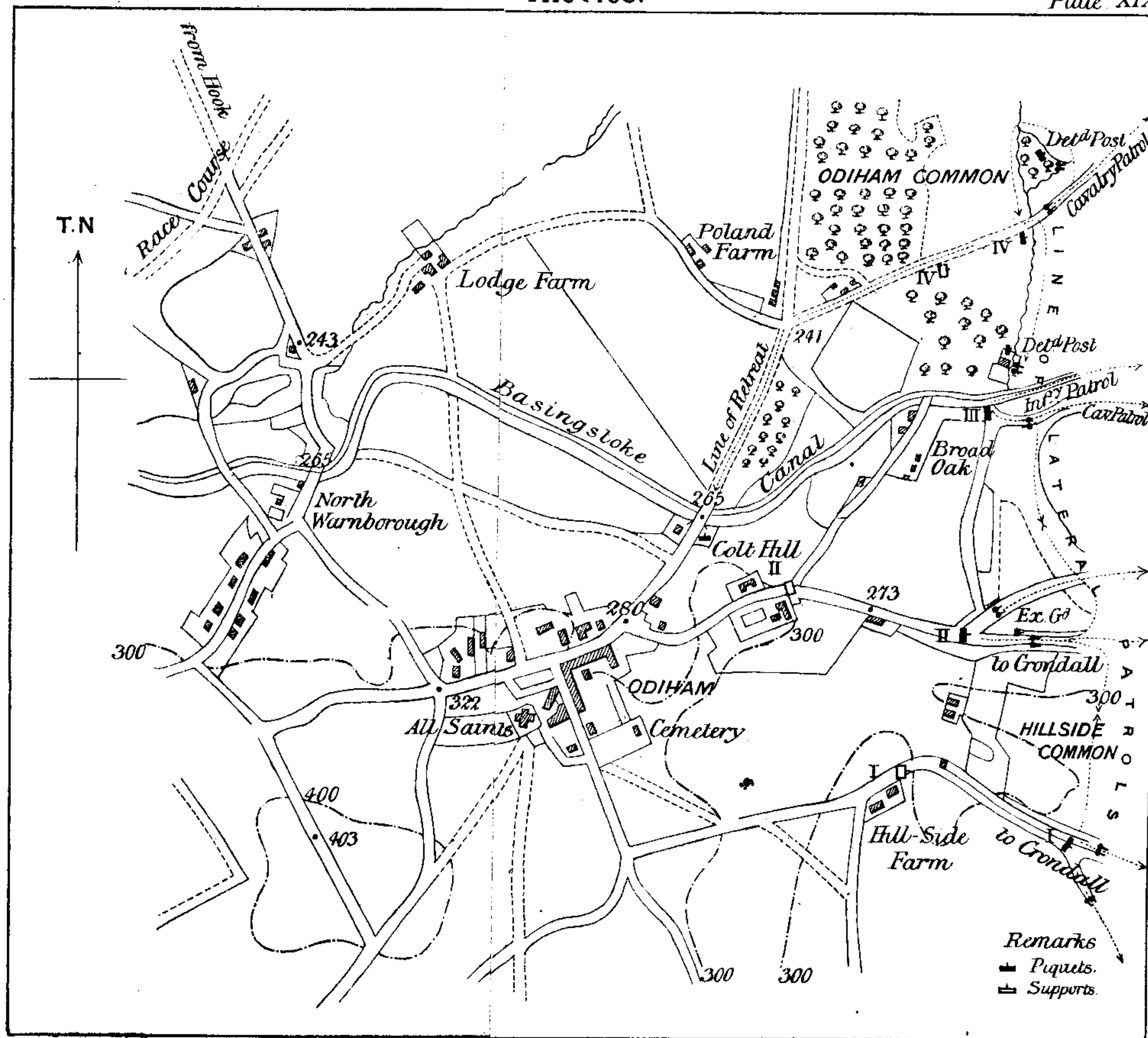
The Bistritz Brook is the line indicated for the piquets to take up, and is the general resistance line for the outposts.

You are the commander of a central section of the above outpost force. The troops under your orders consist of a battalion of infantry and half a squadron of

OUTPOST SCHEME No. IV.
LIEUTENANT'S PROMOTION EXAMINATION NOVEMBER, 1891.

TACTICS.

Plate XIX.



Scale $\frac{1}{21120}$ or 3 inches to 1 Mile



cavalry (60 sabres), and the frontage allotted to your section extends from Mokrowous to Sadowa, and you are responsible for the Sadowa-Lipa Road, and the village of Mokrowous.

Show on the map the positions of your piquets and supports by day, and state what alterations you would make at night.

Give the strength and detail of your piquets and supports, and the instructions you would give to the cavalry commander for day and night duty.

Answer.

For purposes of description, the piquets are numbered I., II., &c., from the right.

The sentries and piquets are shown "Red," and supports "Blue" (*vide* Map A).

The alteration in the disposition at night would be as follows:—

All sentries, except those on roads and at the edges of woods, would be withdrawn, and the frequency of infantry patrols increased.

During the day, Hola Wood be frequently patrolled by infantry, at night, constantly.

At night, No. III. piquet would be withdrawn from Dolalicka to the Brick Kiln (zgl) and the village of Dolalicka frequently patrolled.

By day, if the piquets are attacked, the supports will move up to their assistance.

At night, if attacked in force, the piquets will offer a stubborn resistance, and fall back fighting on the supports.

DETAIL OF INFANTRY PIQUETS.

	I.	II.	III.	IV.	V.	VI.	VII.
Double sentries	6	12	6	6	6	12	12
Groups	—	—	—	—	6	—	—
Sentries over arms	3	3	3	3	3	3	3
Connecting sentries.....	3	3	3	3	3	3	3
Detached posts.....	—	—	12	—	—	—	—
Examining guards	6	—	—	6	—	—	6
Visiting patrols	4	4	6	4	6	4	4
Reconnoitring patrols	28	28	70	28	26	28	22
N.C. officers and resistance							
Total.....	50	50	100	50	50	50	50

REMARKS.—No. III. Piquet is full strength, it is to some extent isolated by day, and has a considerable amount of patrolling at night.

Supports.

There are four supports, each consisting of one company.

Orders to the Cavalry.

The following general instructions would be given by the commander of the Section of outposts to the officer commanding the half-squadron of cavalry:—

Establish piquets by day at Langenhof, Lipa, and at the village north of Lipa, and patrol in an easterly direction for ten miles, if you do not come in contact with the enemy. Establish connecting posts on hill 733 west of Langenhof, and at the cross roads near east corner of Hola Wood.

Detail two troopers to each infantry piquet, for orderly work, and one to each support, and two as orderlies to the commander of the Section of outposts.

Report to commander of Section at Unt. Dahalitz every three hours, until you establish touch with the enemy, and then report half-hourly, or oftener if necessary.

If you are not relieved before darkness sets in, withdraw your piquets to Mizan for the night, and send four

selected troopers and a N.C. officer to Nos. I. and VIII. piquets respectively for patrolling. These men will patrol as far as Langenhof, Lipa, and the village north of Lipa.

DETAIL OF THE CAVALRY.

No. I. Piquet, Langenhof	10	sabres and an officer.
No. II. „ Lipa	15	„ „ „ „
No. III. „ Village N. of Lipa	10	„ „ „ „
Connecting post, No. 1	3	and a N.C. officer.
Connecting post, No. 2	2	„ „ „
With infantry piquets	14	
With the supports	4	
Orderlies for commander of section	2	
		<hr/>
Total	60	

Example VI.

An army corps is on the march to Stockley (see Plate XX.), where it is going to encamp, intending to continue its march the next day, with a view to operating south of the River Kelvin.

As commander of the advanced guard of the army corps consisting of:—

- 7th Hussars.
- 1st Battalion Royal Scots.
- 1st Battalion the Queen's.
- 2nd Battalion the Buffs.
- 2nd Battalion the King's Own.
- 4th and 5th Field Batteries.
- 6th Field Company Royal Engineers.

On your arrival at Stockley, after a 14 miles march, at 11 a.m., 5th June, 1896, you receive the following orders:—

The enemy is reported by the advanced cavalry to be

encamp round Stockley, and, if unopposed, continue its march south to-morrow.

You will occupy an outpost line, to hold the line of the River Kelvin (within the limits of the map), until the new advanced guard, which will leave the southern entrance of Stockley at 4 a.m. to-morrow morning, has passed through you. Our advanced cavalry is falling back before the enemy, who is superior in this arm.

Give the orders you would issue ?

Answer.

OUTPOST ORDERS.

Stockley,

5th June, 1896. 11.30 A.M.

1. The enemy is reported to be 20 miles south of the River Kelvin. Our advanced cavalry is falling back slowly. The advanced guard has been ordered to take up an outpost position, to hold the line of the River Kelvin until a new advanced guard marches through to-morrow morning. The main body is going to encamp at Stockley.

2. The outposts will be divided into two sections, each section furnishing its own piquets and supports.

3. No. 1 section : Commander, Colonel A., Royal Scots.

Troops :—Half Squadron, 7th Hussars.

1st Battalion Royal Scots.

4th Field Battery, R.A.

Extent of front, Highbridge Wood—Highbridge House and enclosure, both inclusive.

Colonel A. will hold the southern entrance to Highbridge town with a company ; if driven back, this detachment will retire to the houses on the *left* bank of the river, and defend the bridge ; it will be withdrawn to the left bank in any event after dark, but will continue to patrol the southern part of the town over the river constantly during the night. Colonel A. will send cavalry patrols up the river along the left bank, and down the road leading south from Highbridge four or five miles. Colonel A.'s supports by day will be strong enough to furnish the piquets with which they are linked at night. The day piquets will be composed of cavalry.

4. No. 2 section : Commander, Colonel B., the Queen's.

Troops :—Half Squadron, 7th Hussars.

1st Battalion the Queen's

Extent of front, east side of Highbury House enclosure to east edge of map.

Colonel B. will hold Lowbridge with a company, and will send cavalry patrols down the river along the left bank, and down the road leading south from Lowbridge four or five miles.

Colonel B.'s supports by day will be strong enough to furnish the piquets with which they are linked at night. The day piquets will be composed of cavalry.

5. The day cavalry piquets will be relieved by infantry at 8 p.m., and retire to Errol House.

6. The piquets will be numbered from the right.

7. The infantry must have as much rest as possible during the day, but be ready to turn out at a moment's notice.

8. Section commanders will make their own arrangements for cooking.

9. The officer commanding the 7th Hussars will send one troop to the commander of each section of outposts at 7.30 a.m., for night patrolling and orderly work.

10. In case of attack the piquet line will be the main resistance line. The piquets will be posted along the general line, Highbridge Wood, Highbridge House, and slopes due east of Highbridge House. The enemy must be opposed at all points should he attempt to cross the river, and the outposts will not fall back without orders.

11. The artillery will withdraw at 8 p.m., and bivouac for the night on east side of Highbridge House enclosure.

12. The day dispositions will be resumed at daybreak to-morrow morning.

13. Section commanders will inform the commander of the outposts of their positions, and will establish signal communication with him at Errol House, and also with each other.

14. The commander of the outposts will have his headquarters at Errol House, where the reserve, consisting of—

Headquarters 7th Hussars,
2nd Battalion the Buffs,
2nd Battalion the King's Own,
6th Field Company, R.E.,
The Brigade Ammunition Reserve

will be bivouacked.

15. Countersign, "Warren Hastings."

Example No. VI. (Second Part.)

Give the orders Colonel A. would issue for the troops of his outpost section.

ORDERS FOR OUTPOST SECTION No. 1.

South Entrance, Stockley,

5th June, 1896. 12 noon.

(1) The enemy is reported to be some miles south of the River Kelvin, but our advanced cavalry is falling back.

(2) The advanced guard has been ordered to cover the encampment of the army corps at Stockley by an outpost line extending along the line of the River Kelvin from Highbridge Wood to Lowbridge.

(3) If unopposed, the army corps is going to continue its march south to-morrow, and a new advanced guard will march through the outposts soon after daybreak to-morrow morning.

(4) The outpost line is divided into two sections. The Right, or No. I., Section is under my command.

Troops :—Half Squadron 7th Hussars.

1st Battalion Royal Scots.

4th Field Battery, R.A.

Extent of front, Highbridge Wood to Highbridge House and enclosure (both inclusive.)

(5) The cavalry will move forward at once, and occupy a day line of observation.

No. I. cavalry piquet, strength one troop, will take post on the west side of Highbridge Wood, and patrol the river constantly *up stream* along the *left* bank from the western entrance of Highbridge town for five miles.

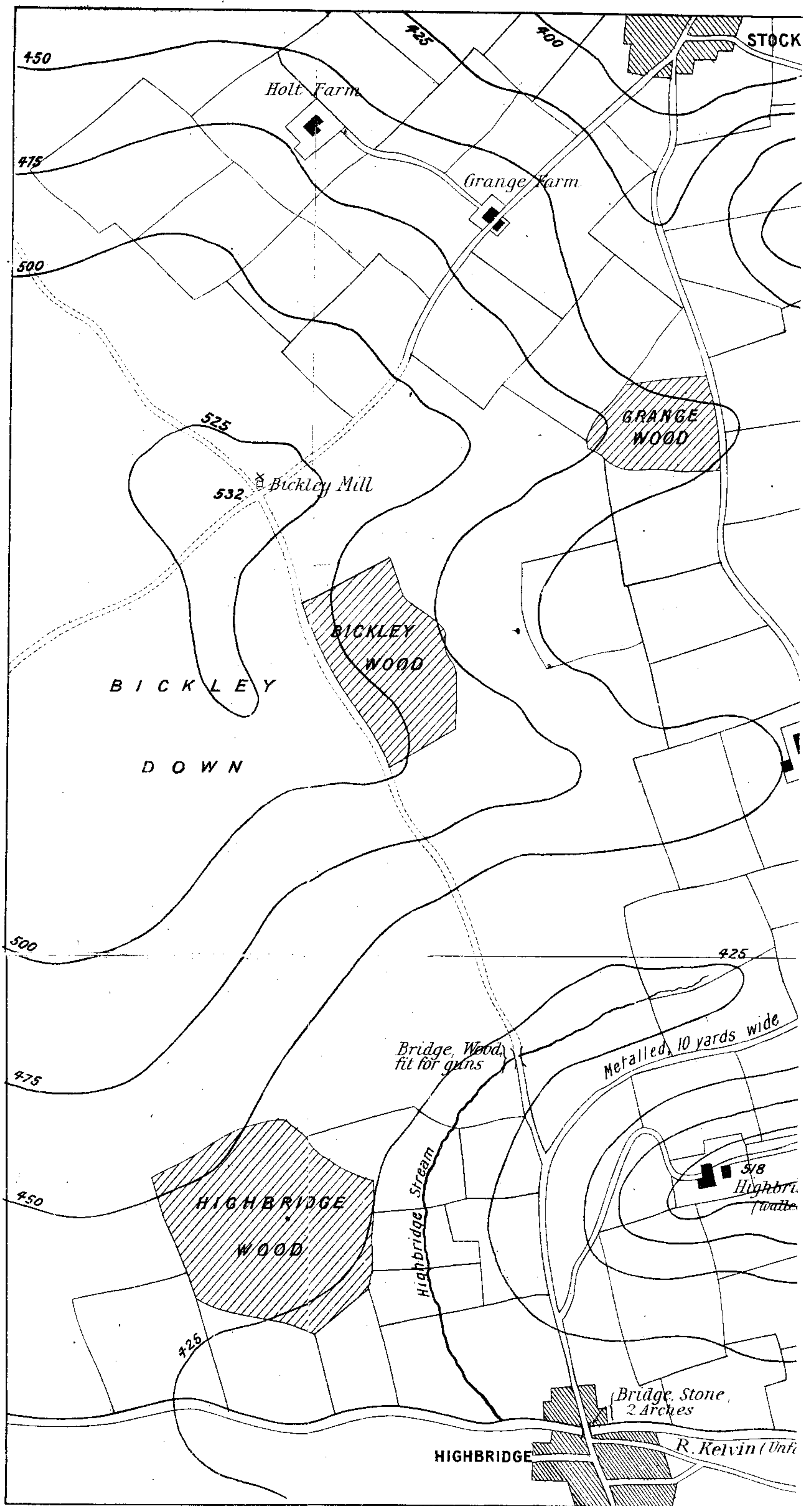
No. I. cavalry piquet will be supported by four companies of the Royal Scots bivouacked on the east side of Highbridge Wood near the stream. It will be relieved at 8 p.m. by infantry piquets, and will retire to Errol House.

(6) No. II. cavalry piquet, strength one troop, will take post on the road half-a-mile south of Highbridge town, and patrol the road leading south for four miles. This piquet will be supported by an infantry detached post at the southern entrance of Highbridge town. At 8 p.m. the piquet will retire to Errol House.

(7) The right half battalion Royal Scots, under Major C., will bivouac near the stream east of Highbridge Wood, and will act as a support during the day to No. I. cavalry piquet. At 8 p.m. Major C. will relieve the cavalry piquet and occupy the Wood and ground to the west of Highbridge stream with two infantry piquets, strength one company each. No. I. will take post south edge of Highbridge Wood; No. II. half-a-mile due east of No. I. piquet in the same alignment.

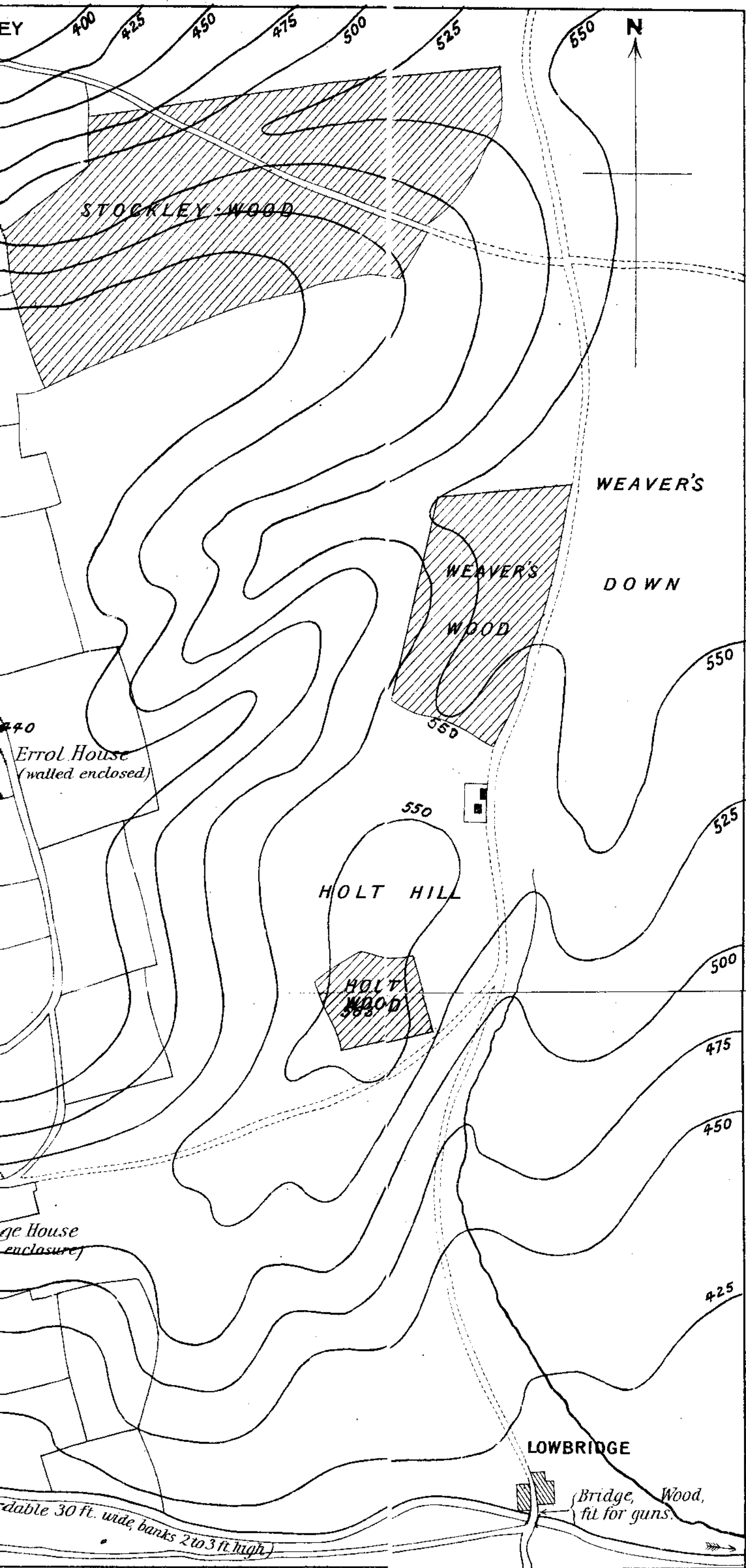
(8) The left half battalion Royal Scots, under Major D., will bivouac in the grounds of Highbridge House during the day, and will act as a support to No. II. cavalry piquet. Major D. will detail one company as a detached post, to hold the southern entrance to Highbridge, with orders to establish an examining post and act as an advanced support to the cavalry during the day. He will direct this detachment to retire with the cavalry at 8 p.m.

At 8 p.m. Major D. will post two infantry piquets, each one



Scale, 3 inches to 1 Mile
V.I. 25 feet.





2 Miles.

company; No. III., at the houses on the north side of the river, to defend the bridge at Highbridge. The officer commanding this piquet will be directed to patrol the southern portion of the town during the night with infantry constantly, in addition to the cavalry patrols pushed out beyond the town. No. IV. piquet will be posted south of Highbridge House, on contour 425.

(9) The piquets will be numbered from the right.

(10) The supports at night will occupy the same positions as by day, but easy means of egress from Highbridge House enclosure must be arranged for.

(11) Five troopers will be attached to each piquet before they start at 7.45 p.m. for patrolling and orderly duties, about which the commanders of piquets will receive orders later on.

(12) In case of attack by day, the infantry supports will cover the retreat of the cavalry piquets and reinforce the detached post at Highbridge, and oppose the enemy should he attempt to force the passage of the river. At night, also, the supports will move up to reinforce the piquets. There will be no falling back without orders from the commander of the section.

(13) At night sentries will be posted along the left bank of the river, 200 yards apart.

(14) No. II. cavalry piquet by day, and No. IV. infantry piquet at night, will communicate with No. II. outpost section on their left.

(15) The supports and the infantry detached post can cook.

The cavalry piquets will have cooked rations sent to them from their own regiment.

(16) The officer commanding No. I. section of outposts will be at Highbridge House, where all reports will reach him.

(17) Countersign, "Warren Hastings."

(Signed) A., Colonel,
Commander No. I. Outpost Section.

Dictated to assembled officers
and taken down in writing.

CHAPTER XIII.

DEFENCE OF A POSITION BY THE THREE ARMS COMBINED.

THERE are two kinds of defence:—

(i.) The Passive Defence.

(ii.) The Active Defence.

(i.) The passive defence confines itself to holding a position, and aims at either delaying the enemy or repelling him. The resistance offered by outposts is passive; a rear guard assumes a passive defensive attitude to delay a pursuit and gain time for the main body it is covering to get away; an advanced guard pushed forward to seize and hold a strategical position until the main body can come up usually defends it passively until the arrival of the main body. Counter attack in any of the above cases would be exceptional, and then only of a temporary character. Again, when a small force finds itself opposed to a large one, it selects a position which cannot be easily turned, and contents itself with endeavouring to repel the assailants. On the principle of Horatius and the bridge,

“In yon straight path a thousand
May well be stopped by three.”

Strategical, or political, considerations may sometimes necessitate a defensive attitude, apart from physical inferiority; but generally the side which adopts a passive defence is, for the time, either morally or physically in-

ferior, and is content to delay, or, at most, to repel its opponent.

The typical passive defence is that of a beleaguered place, holding out in hope of being relieved. The defence of Lucknow affords a good example of passive resistance.

The active defence has for its ultimate object the defeat of the enemy, and contemplates making an offensive return. It has been said that "Counter attack is the soul of defence." Circumstances of ground, or the tactics of the enemy may suggest the desirability of taking up a defensive offensive attitude apart from any acknowledged inferiority; the idea being, first, to exhaust the assailants, and then to issue out and overwhelm them with fresh brigades, or divisions hurled against their demoralised and disheartened troops. In savage warfare a defensive attitude may sometimes be assumed, simply as a ruse, to entice the enemy to advance within effective range of the defenders' rifles; but, ordinarily, whether the defence is passive or active, the primary object is to repel the attack. We will therefore confine ourselves to the consideration of the active defence, which embraces the passive.

There is no part of tactics which is so entirely dependent on the formation of the ground as the defence. A position of any considerable extent may include villages, farms, enclosed land, open spaces, valleys, ravines, streams, portions of rivers, defiles, woods, copses, isolated hills, and more or less continuous heights, and the defence of each of these features may necessitate a different distribution of troops, but the object is the same,—viz., the repulse of the assailants by the troops in the *first line*, which should be posted so as to admit of their fire being directed on the approaches.

The Infantry Drill Book contains many illustrations of it.

may be assumed that a fairly strong position, partly entrenched, would require, including all arms and troops in reserve, about five men per pace; but this must not be taken too literally, as the number required depends on the nature of the ground and the object of the defence.

In the event of it being necessary to occupy a position too extended for the numbers available to defend it, it will usually be preferable to occupy the front thinly, keeping a strong reserve to reinforce at any threatened point, rather than to distribute the force generally along the front. A good rough rule is, that a division of our army, numbering some 10,000 men of all arms, ought to be able to undertake the *active defence* of about a mile of frontage with half its infantry posted in the first line, and the remainder held back to be used as occasion demands. If strongly fortified fewer troops will be required in the first line; and again, if the enemy's artillery positions are inferior to those of the defence, and the ground is open, fewer infantry may be sufficient to repel his attacks; but it must never be forgotten that the first principle of defence is to be ready to repel the enemy at all points of his attack, and in order to do this a sufficient number of rifles must be posted in the first line to repel the assailants.

With a view to subsequent offensive tactics the infantry should be economised as much as possible, but this must not be done at the risk of losing the positions. The defenders, to be successful, must first repel the assailants wherever they attack; it is therefore extremely important to select a position which is not too extended to hold throughout with the troops available to defend it with.

During the reconnoissance prior to the occupation of a position, advanced posts, which it is thought necessary to hold, should be noted, and strong and weak points

carefully considered with a view to deciding on the best distribution of the different arms for their defence. The requirements of a typically good position taken in the sequence of their importance are as follows:—

- (i.) Its extent should be suitable to the number of troops available for defending it with, either passively or actively.
- (ii.) A general command of the surrounding country, in front and on the flanks, with suitable ground for the whole of the guns to be worked on.
- (iii.) Flanks protected, either naturally or artificially.
- (iv.) No ground within artillery range which cannot be seen. (This often necessitates the occupation of advanced posts, which ought to be flanked, if possible, from the main position.)
- (v.) No commanding positions for the enemy's artillery.
- (vi.) No very pronounced salient points. (If the approaches are open the position cannot be too straight.)
- (vii.) Cover for the first line. (If this is not procurable the firing line must entrench, especially if the convexity of the slopes obliges it to be advanced over the crest line. Supports and reserves of the first line may have to entrench also; but troops in rear of the first line should be able to get cover in the folds of the ground.)
- (viii.) Sufficient depth to admit of free movement of troops within the position, and if the flanks

are open and liable to be turned, for troops to be echeloned in rear of them.

(ix.) Facilities for issuing out in counter attack, supported by artillery fire.

(x.) Good lines of retreat.

(xi.) Good lateral communications, to admit of the free movement of troops to any threatened point.

(xii.) A fair supply of drinkable water.

When any of these requirements are absent, a general must adapt his defence to circumstances, and make the best of them.

A position tolerably strong throughout is preferable to one which is strong in some places and weak in others. It must be borne in mind that the assailants to be victorious need only be successful at one point.

For the passive defence, an obstacle, such as a river or marsh within range, running parallel to the front is good; but, on the other hand, for the active defence a continuous obstruction is bad, as it interferes with counter attack. (Example, Sedan.) A good position for defence is where the defenders are protected from fire by the formation of the ground they hold, while the approaches to it can be swept by their fire. The crest line of a chain of low hills, with gentle and open slopes in front, and on the flanks, is perfection, and any modified fulfilment of these two conditions,—viz., cover from fire and range, is more or less desirable.

The advantages claimed for the defence are :—

(i.) The defenders, subject to strategical considerations, and the general line of the enemy's advance, can choose the most desirable positions.

(ii.) Weak places can be artificially strengthened.

- (iii.) Cover for the assailants can, to a certain extent, be destroyed; failing this, its advantage to them is greatly nullified by withdrawing some distance behind it.
- (iv.) The defenders can generally fight behind cover.
- (v.) They can ascertain the ranges of the assailants' artillery positions, and bring long range rifle fire to bear on places which must be crossed to approach the position. (In future the absence of smoke will facilitate the use of this long range rifle fire.)
- (vi.) The defence has greater facilities than the attack for the supply of ammunition.

On the other hand:—

- (i.) The defenders are stationary, which is demoralising, especially to young troops, when subjected to a heavy cannonade.
- (ii.) The defenders, to be victorious, must be successful everywhere, while the assailants need only be successful at one or two places.
- (iii.) The best class of defence aims at *counter attack*, which means the assumption of the offensive, a difficult operation.

The defence of a position may be considered under the following heads:—

- I. The division into sections for defence.
- II. The action of the cavalry, supported by horse artillery and mounted infantry.
- III. The outposts.
- IV. Advanced posts.
- V. Action of the artillery.
- VI. Action of machine guns.
- VII. First line of infantry.

VIII. Second line of infantry.

IX. Third line of infantry.

X. Counter attacks.

XI. Protection of the flanks.

XII. Demolitions and obstacles.

XIII. Strengthening of posts and entrenchments.

XIV. Field works.

The Division into Sections for Defence.

As far as possible a complete unit should be allotted to each section, so that it may supply its own supports and local reserves. "The frontage allotted to the various sections of the defence will vary with the field of fire obtainable; it will be less in a close and broken country than in an open country. Where roads run through the front of a position units should be placed astride of them, so that there may be undivided responsibility for the defence of the approaches."*

The Action of the Cavalry, supported by Horse Artillery and Mounted Infantry,

will depend on the ground and the strength and tactics of the enemy's cavalry. The knowledge of the ground should materially assist the defender's cavalry in seizing opportunities to take that of the assailant's at a disadvantage; but the introduction of smokeless powder will tend to modify the action of cavalry when operating against the other arms.

Cavalry tactics are always offensive, and, if strong enough to risk an encounter, the cavalry of the defence should endeavour to defeat the enemy's squadrons, and

* Infantry Drill Book, 1896.

subsequently, if an opportunity presents itself, attack his advanced artillery. The horse artillery, when not actively supporting the cavalry, will open fire on any formed bodies of the enemy that come within range, with the object of obliging them to deploy at a distance and delaying his advance. Mounted infantry co-operating with horse artillery and cavalry should be posted so as to protect the guns, and cover the retreat of the cavalry if it is driven back.

If the enemy's cavalry is beaten the defenders will be able to discover the distribution of his forces behind it, while at the same time the position occupied by their own main body will be screened. The attacker will thus be deprived of one of his greatest advantages, viz., concealment of his intentions.

In the event of the cavalry of the defence being driven in, it can withdraw under cover of the mounted infantry to the flanks. The horse artillery will now be ordered to join the field batteries and help to defend the position. They can rejoin the cavalry if required to do so, but to keep batteries idle, waiting for a possible opportunity to co-operate with discomfited cavalry, is no longer admissible.

The defenders' cavalry and mounted infantry when withdrawn to the flanks will still endeavour to protect them, and do their utmost to obtain early information of any turning movement.

When not actively engaged on the flanks, cavalry should be kept in reserve out of harm's reach, but in readiness to follow up a beaten enemy, or to cover the retreat of its own army by making any sacrifice that the tactical situation may demand of it.

Although the action of cavalry is mainly on the flanks, cavalry leaders should be on the alert to seize

opportunities to attack portions of the enemy's advancing troops in flank. Small bodies, if they can be kept hidden from view, are suitable for attacks of this kind, which can sometimes be delivered with great effect just as the enemy is assaulting the position.

The Outposts.

Outposts composed of cavalry and infantry with artillery, and, if necessary, machine guns, varying in strength with the nature of the country, the character and proximity of the enemy, the position of the camp or bivouac with regard to the fighting position, and the strength of the main body, but seldom exceeding one-sixth of the entire force, are usually distributed so as to screen the front and overlap the flanks of the position selected to fight on, or, if the main army is bivouacked close at hand, to hold the actual ground it intends to fight on, until the main body can turn out and get into position. In the former case the distance the outposts are pushed out will depend on the formation of the ground, whether posted by day, or by night, or in thick weather, whether furnished by cavalry, or infantry, or a combined force, and the time required by the main body to turn out and get into position.

“Against civilised troops the extent of front occupied by outposts should be sufficiently great to prevent the enemy, even if he turns a flank, placing his artillery, undiscovered, within 4,000 yards of the main position.

“The relative proportion of cavalry and infantry, and the method of employing them, depend on whether the stationary or mobile element is called upon to play the more important rôle. In a very enclosed country with numerous lines of approach, in close contact with the enemy, by night, or in foggy weather, the former will

preponderate, and the chief work will fall on the infantry; in an open country, by day, most of the work will be done by cavalry; but under all circumstances, by day and night, except during siege operations, the patrolling and reconnoitring should be done by the cavalry.

“If cavalry are of a necessity employed in the line of sentries in a continuous line of outposts they should be on the flanks of the infantry.” *

Having accomplished their mission, which is to give timely warning to the main body of an impending attack, the outposts should be withdrawn in such a manner as not to cloud the fire from the main position.

Unless they are stationary, as in the case of an investment, outposts do not as a rule fortify their posts very strongly. Officers employed on outpost duty should bear in mind that they are not intended to win battles, and only in special cases to repel serious attacks; they should, however, always endeavour to prevent the enemy reconnoitring, even if he attempts to do so by force.

Advanced Posts.

Advanced posts are undesirable: if close to the position they form salients for attack; if at a distance from it they generally have to bear the whole brunt of the enemy's attack, and are sure to be overwhelmed.

The general rule to be observed about their occupation is that any place in front or on the flanks of the main position, which hides the ground in front of it from the main position, or which would be a point of 'vantage to the enemy, may be held as an advanced post, provided that it is within either infantry or artillery supporting

distance of the main position, and provided there is a good line of retreat from it.

The object of occupying these places is to delay the attack, and force the assailants to deploy at a distance, and gain time to enable the defenders' general to adapt his scheme of defence to meet the attacks of the enemy.

It can seldom be desirable to place large bodies of troops in front of the line on which they will have to retire, and the garrison for an advanced post should be restricted to a few light guns, supported by small detachments of infantry with machine guns if necessary. Advanced posts should be flanked by the artillery of the main position. The object of the infantry is to stop the advance of the enemy's artillery after the defenders' guns have been forced to withdraw, and thus prolong the delay by obliging the enemy to send forward infantry to clear the way for his guns. In this work the defenders' infantry can be assisted by machine guns.

Villages, small woods, farmhouses, &c., are often so situated as to be important tactical points in the defence, and, when not too large, are capable of offering a prolonged resistance.

Sometimes an advanced position in front of a flank may be so important as to justify a considerable garrison being detached to hold it at all hazards. Such a position has the advantage of enfilading the enemy's front attack; its occupation compels the enemy to make a wide turning movement in order to outflank the position; it also protects the outer flank of a counter attack, if delivered by the defenders between it and the position.

An advanced post in front of the centre of a position is said to be a favourable place to issue from in counter

attack, but the defenders must be very strong to be able to do this, as they run the risk of exposing both flanks to the enemy.

Action of the Artillery.

The artillery of a force acting on the defensive will, as a rule, occupy prepared positions; these positions need not always be occupied at first. In accordance with the Artillery Drill Book we will consider the action of the artillery in defence under the following three headings:—

- (a) The Preparatory Action.
- (b) The Main Action.
- (c) The Counter Attack.

The Preparatory Action

The first positions for the guns will be selected with a view—

- (i.) To forcing the enemy to deploy and assume attack formations a long way from the position, and thus not only delay his advance, but force him to disclose the direction of his impending attack in time to make preparations to meet it; but the defenders' artillery should avoid opening fire too soon, as it discloses their positions and facilitates the reconnaissance of the position.* This preparatory action, as we have seen, may be commenced by the artillery of the advanced cavalry brigades, and prolonged by the artillery of the

* Smokeless powder will to a great extent remove this disadvantage.

advanced posts; or it may be the work of batteries, flanked by cavalry, pushed out with the express purpose of temporarily delaying the enemy's advance. The probable positions for the enemy's artillery should be carefully ranged.

It may be assumed that the attacking artillery will be reinforced and drive in these advanced batteries. The defenders will then open fire from their main artillery positions, which have likewise been carefully selected along the front line of defence and prepared with a view—

- (ii.) To preventing the enemy's batteries establishing a general preponderance preparatory to concentrating their fire on certain tactical points of the position. This is best done by engaging all his batteries as they come into action, and endeavouring to overwhelm them before they can range.

This stage of a battle is called the artillery duel, during which the advantages claimed for each side respectively are:—

- (a) The artillery of the attack can select its point and distance for the attack.
- (b) The defenders' artillery should have previously ascertained the ranges of positions likely to be occupied by the enemy's batteries, and should also be in possession of better cover than the assailants.

If the artillery duel can be considerably prolonged, the infantry attack will either not take place, or it will ~~have to~~ advance under fire of the defenders' artillery.

The actual posts of the batteries on the main position will depend on the ground and the enemy's lines of advance. The first two requirements of an artillery position must be fulfilled,—viz., room to work the guns and range. Some guns are usually required for the protection of the flanks.

Sometimes a position in front of a flank if occupied enables the defenders to enfilade the enemy's artillery positions, and at the same time guard the roads by which a turning movement can be made. Guns, when thus advanced beyond the first line, should be protected by field works, and should always be supported by cavalry on their exposed flank, to give warning of any turning movements.

If a flank is very open guns afford better flank protection when echeloned back in rear of it, from whence they can enfilade the enemy if he makes a flank attack. The protection of the flanks will generally entail a division of the defenders' artillery, but the principle of concentrating a superior fire against the most important portions of the assailants' troops must not be lost sight of, and experience shows that it is difficult to concentrate the fire of dispersed batteries from different ranges. Batteries can, however, be moved in defence as well as in attack, and when there is covered communication in rear of the first line, with comparative safety. This power of rapid movement admits of batteries being shifted to meet an attack from another direction, which is often preferable to dividing them into groups at the beginning of the battle.

Unless the ground is flat, or when firing up-hill, guns should not be posted in the same alignment as the infantry *firing line* in defence, "but about 500 yards behind it, in short re-entrants, from whence they can flank the salients, or on the crests of hills with the infantry en-

trenched a short distance down the slopes.”* In either case the gunners are protected by their own infantry from the enemy’s sharpshooters, and when the infantry are pushed down the slopes it admits of two tiers of fire. Another reason for keeping guns behind the first line is that it gives greater freedom for moving batteries. If the re-entrants are very deep, guns must be placed in the salients above the first line of infantry if they can fire over them.

Should the artillery of the defence find itself over-matched in the preparatory duel, it may be withdrawn from action until the enemy’s infantry advances to the attack.

(b) The Main Action.

The principles which govern the action of the artillery of the defence during what is called the main action or the close attack are :—

- (i.) To endeavour to stop the advance of the assailant’s infantry at all hazards, by directing its fire upon it as soon as it comes within range.
- (ii.) To hold its ground to the last.

(c) The Counter Attack.

The action of the artillery, when supporting a counter attack, should be bold; and during this stage there should be no hesitation to expose the guns to the fire of infantry, even at short ranges.

Should a retirement be ordered, the batteries will take up successive positions to cover the retreat of the infantry. Gunners now claim to be able to look after their own front, but when advancing or retiring, and in fact at all times, the co-operation of cavalry on their flanks is desirable.

* Artillery Drill Book.

The principal object to be aimed at by artillery in defence, as well as in attack, is the concentration of its fire against the most important tactical combinations of the enemy.

Machine Guns.

Machine guns, though they are attached to battalions and regiments, are under the direct orders of the commander of the brigade or division to which they belong. Their most useful sphere of action is medium rifle range. The Infantry Drill Book says: "It is more important to shield the machine guns from hostile artillery fire than it is to ensure a long range for them. It will, therefore, generally be found better to select ground that will give these guns a range of from 600 to 800 yards, secure from artillery fire, than to occupy ground from which a more extended field of fire can be obtained, but which will be in danger of being brought under the fire of the enemy's artillery." They should be protected as much as possible, and posted to sweep with their fire roads and approaches leading into the position.

First Line of Infantry.

The first line of infantry, sub-divided into *firing line*, *supports*, and *local reserves*, comprising about one-half of the infantry, after deducting the third line or general reserve, should take post (as soon as the enemy's infantry is seen to be advancing within the zone of long range rifle fire), with as many rifles in the *firing line* as can be effectively used, and kept up in spite of casualties. The firing line will be distributed along the outer edges of woods and the highest parts of the position from whence an effective fire can be brought to bear upon the approaches, especially so as to command ravines leading into the position. When posting infantry in the first line care should

be taken to economise them by only occupying places that are assailable by the enemy's infantry. The defensive supporting points should be held passively, in order to set free the maximum number of troops to hold what are called the offensive intervals. The supporting points, small woods, hamlets, farmhouses, &c., should be strengthened, as far as time permits, by earthworks, the intervals being protected by shelter trenches offering no obstacle to counter attacks. When there is no natural cover, and especially where the convexity of the slopes obliges the first line to be advanced over the crest line, it must entrench, but every possible use should be made of any existing cover. *Supports* should be generally close up to the firing line, and *local reserves* must be near enough to be at hand whenever they are wanted.

The best rule for posting the first line is to post it as thickly as is compatible with keeping up a well-maintained fire, and holding a sufficient number in local reserve to meet all contingencies, and to deliver local counter attacks.

With regard to infantry fire the following extracts from the Infantry Drill Book, 1896, will be found useful:—

“A good effect can be obtained by infantry fire on batteries of artillery up to 1,500, and in some cases up to 1,700 yards. When artillery is in motion, is unlimbering or limbering-up, the teams form the best target; at other times the gunners. Should guns attempt to advance into position within range of infantry, the latter, if still intact, and not engaged with infantry, should be able to throw the artillery into disorder before it can unlimber.

“When posting infantry with a view to firing on guns as they come into action, it should be remembered that

artillery, as a rule, prefer high ground, and will not if possible come into action within range of visible infantry not engaged with other troops.

“The appearance of individual officers on a probable artillery position is a sign that the guns are coming; the neighbouring infantry should then remain concealed, if possible, and in readiness to overwhelm the guns with a destructive rifle fire.

“Infantry should avoid the neighbourhood of conspicuous objects (trees, houses, stone walls, &c.), as these assist artillery in finding the range. A small hollow or soft ground in front of infantry is very baffling to the enemy's artillery, as is also a position some distance in rear of a plateau.

“The effect of rifle fire depends on knowledge of the range, and the features of the ground” (both of which should be possessed by the defenders of a position which has been prepared for defence).

“On troops in close order volley firing will be found the most effective, if it be well regulated and directed:—

“At 800 yards on a small section.

“At 1,000 yards on a large section.

“At 1,200 yards on a half company, and on a section of artillery,—*i.e.*, two guns.

“From 1,400 to 1,700 yards on a battalion in column, and on compact bodies of artillery and cavalry.”

Long range rifle fire specially appertains to the defence, and the knowledge of the ranges of all conspicuous objects within view of the position enables the defenders to bring a galling long range fire to bear, not only on the assailant's artillery if it comes within range, but also on roads and open spaces over which the assailant's infantry must cross during its advance, as the Turks did with so

much effect in the Shipka Pass in 1877. But the fire which causes the heaviest losses and most checks advance is infantry fire at medium and decisive ranges (example, St. Privat); and commanders of units in the firing line, both in defence and in attack, should bear in mind that the real brunt of the infantry fight commences at what we call *medium range*, and that the issue of a battle is decided at what we call *decisive range*. When the assault is about to be delivered the attacker is at a disadvantage; his artillery fire is masked by his infantry. This moment should be seized by the infantry and artillery of the defence to pour a rapid fire into the front and flanks of the advancing enemy.

Second Line of Infantry.

The brigades or divisions composing the *second line* are concealed from the view of the enemy some 600 or 800 yards behind the first line in places from whence they can be moved as required:

- (i.) To aid the first line in repelling attacks.
- (ii.) To meet a flank attack.
- (iii.) To make a counter attack.

It is seldom advisable to occupy a position fully until the direction of the enemy's attack is known, especially if the position happens to be large in proportion to the number of troops available for its defence. After providing for the support of the first line, the bulk of the second line troops will be assembled at a place from whence offensive tactics can be best attempted. This will generally be from a flank, and the brigades or divisions in the second line will mostly be placed in rear of a flank, or echeloned back outside it.

The strength of the second line will vary with the intentions of the general, the nature of the ground, and

the number of troops required to man the first line: as a general rule it should be about equal to the first line.

Third Line or General Reserve.

The presence of a *third line* or general reserve ought to indicate that the defenders, having made ample arrangements for repelling the attack, contemplate the assumption of a vigorous offensive; and the third line should be so placed as to be able to deliver a counter attack with the greatest possible effect after the attack has been fully developed.

There are four kinds of what are called grand counter attacks, which usually take place towards the close of a battle, and are intended to have decisive results:—

- (i.) Round a flank directed against the flank of a front attack.
- (ii.) Against the flank of a turning or enveloping attack.
- (iii.) Against the centre of the attacking force.
- (iv.) Inside the position after the assailants have entered it, and before they can establish themselves. (Example, the defence of Plevna.)

The best time to issue in counter attack is generally when the enemy has been checked by the fire of the defenders and shows signs of wavering. Counter attacks should be supported by as many guns as can be spared from the defence of the position.

The third line or general reserve should be handled with a view to winning a battle rather than covering a retreat; but when a retreat is decided on without delivering a counter attack, the troops in the third line being

the freshest available, will be disposed to cover the withdrawal of those in front, and subsequently furnish the infantry portion of the rear guard.

Flank Protection.

When not resting on some natural obstacle, such as a river or a morass, the flanks of a position are almost invariably its most vulnerable points to attack, and will, as a rule, be liable to be enveloped, or turned; to guard against this the defence must be either advanced, refused—*i.e.*, drawn back at an angle from the general alignment—or retired in echelon according to the object in view and the accidents of the ground.

A position in front of a flank, if it can be made strong enough to hold its own, is the best for offensive tactics; it not only guards the approaches on that side and brings a flanking fire to bear on a frontal attack, but protects the otherwise exposed flank of a counter attack delivered between it and the main position.

When time admits such a position should be fortified with a view to holding out to the last.

The larger the defending force the greater should be the distance between the flanking troops and the flank they are protecting, provided always that they are within supporting distance.

A position in extension of a flank is sometimes held in order to compel an enemy to extend his front of attack.

Entrenchments for infantry and epaulements for artillery, echeloned some way back outside a flank, are best for counteracting a deep turning movement, as the troops occupying them take the enemy in flank if he turns the first line, and if his turning movement has to be so wide that the troops executing it are marched beyond the tactical

sphere of the field of battle, they become isolated, and the defenders can take advantage of the situation to issue out in counter attack and overwhelm their opponent's divided forces in detail. Such a division of forces on the part of the attack is always most risky, unless, it is aided by a formation of ground which prohibits a counter attack being promptly delivered.

When the flank of a position rests on a wood that commands a good field of fire from its outer edge, provided it can be properly garrisoned, the wood is an advantage. But if the wood is too wide to admit of its outer edge being strongly defended, while at the same time it extends far up into the position, it is a source of weakness. The danger to the defenders of such a wood can be modified by taking up a position in rear which commands the exit; but it is undesirable to let the enemy get far up into a position unopposed, especially on a flank. A village is not now considered to be such good flank protection as formerly, as it cannot hold out against modern artillery fire.

Demolitions and Obstacles.

Demolitions are made with the object of depriving the enemy of cover, obtaining a better field of fire for the defence, or opening up communications between different parts of a position. Every effort should be made to clear the ground in front of a position of any cover that there is time and means to remove, as far as 1,000 yards. Obstacles are constructed with the object of delaying the enemy and keeping him under the fire of the defence. Care should be taken not to put them where they might interfere with the delivery of a contemplated counter attack.

The Strengthening of Posts and Entrenchments.

The object of field fortification is to obtain cover from the enemy's fire, and enable that of the defenders to be used to better purpose by the protection afforded the firers. Woods, villages and houses are all capable of being strengthened when time is available. Cover for infantry in the open is obtained by small open works and entrenchments, and for guns by epaulements or gun-pits.

"The increased importance of artificial cover is due to the fire-action of the modern rifle. Prepared at the right time and place, the service it renders troops and their leaders is important, and at times indispensable. It should, however, be subservient to the leaders' plans, and should in no way govern them. The latter is the case when entrenchments are commenced before the commander's plans are definitely formed. The *premature* strengthening of ground is positively detrimental, and restricts freedom of movement."

"Even in the attack, entrenching tools may be of great service in the retention and strengthening of positions gained." *

Field Works.

When field works of a more extensive kind, such as redoubts, are constructed, they will be placed with a view either to active or passive defence, and should be provided with head cover. If the defence is active, wider

* German Field Exercise.

intervals will be left between the redoubts to admit of troops issuing out between them in counter attack than if it is passive.

If the redoubts are near enough to afford each other flank protection the intervals between them can be left open, otherwise they should be connected by low lines of entrenchments. The situation of redoubts and entrenchments must, however, be entirely governed by the form of the ground.

Redoubts should be held by small garrisons of infantry. It is not now considered advisable to place guns inside closed field works; as a rule they are better placed outside them, so as to admit of their being moved if necessary. This arrangement also admits of their fire being more concentrated.

The breechloader has developed fire-action in the open, almost to the exclusion of what was called "shock"; but the spade, as demonstrated by the Turks at Plevna, and the Russians in the Shipka Pass, has defied the rifle; and the next great war like the last, in 1877, will probably show that before entrenched positions scientifically and resolutely defended as they were at Plevna, can be captured, rifles will be clubbed and bayonets crossed. The Russians in 1877 often reached the Turkish entrenchments only to perish in them, or to capture them after desperate hand-to-hand fighting.

The construction of the Russian and Turkish field fortifications, and their defence, are well worth the careful study of the thoughtful soldier, and every student should read "The Russian Army and its Campaigns in Turkey, in 1877-78," by F. V. Greene, U.S. Army.* The book is published with an excellent atlas, and sets of

* Publishers: Messrs. W. H. Allen & Co., London.

drawings representing clearly the types of field works used by the Turks and Russians respectively.

“The rôle of the engineer in the *active defence* of a position is to strengthen certain points artificially, in such a way that they may be held by a small force, and thus enable the greater numbers to be free for offensive movements in counter attack. These points become pivots, round which the combat frequently turns. Or they may, by creating obstacles on certain lines of approach, force the enemy to abandon those lines and confine his attack to other lines more favourable to the defence and consequent counter attack. Another valuable use of the engineers in this form of operation is in connection with rear guard actions.

“The rôle of the engineer in purely *passive defence* is the construction of more elaborate works, and also he has control over all mines and demolitions.

“It is probable that in future large fortresses will be invested and blockaded, as Metz and Paris were in the Franco-German War, not attacked in regular fashion. The increased power of garrison artillery will make the circle of investment wider than formerly, but nevertheless it seems to be generally accepted by the best authorities that the efforts of engineers will be in future directed towards the prevention of the enemy getting out of, rather than towards their own side getting into, a fortress.”*

Occupation of a Position.

Example I.—In Plate XXI. we see how a position of about a mile in extent would be occupied by a small force

* Extracts from a paper read at the Royal United Service Institution, February 3rd, 1893, by Capt. G. K. Scott-Moncrieff, R.E., on “The Tactical Employment of the Royal Engineers.”

of the three arms. There are four battalions (one of which is held in reserve), one regiment of cavalry (of which two squadrons are held in reserve), and a battery.

The artillery is at once posted on a hill commanding the main approaches to the village of Conway. The village is occupied, the wood in the centre, and the farmhouse on the extreme left.

Two squadrons of cavalry are kept on the right in support of an officers' patrol sent to occupy the hill to the west of Conway Park.

The village of Conway is placed in a state of defence.

Three companies are told off to defend the village, furnishing their own supports.

One company extends along the road to the left of the village.

The remaining four companies form the battalion reserve.

No II. battalion extends four companies along the outer edge of the wood, keeping four companies in reserve.

No. III. battalion extends two companies along the road, and two companies are told off for the defence of Ridgway farmhouse, which is placed in a state of defence: four companies are kept in reserve.

No. IV. battalion is kept in the second line as a general reserve posted with a view to its four specific objects,—viz.,—

1. To reinforce any of the vital points—Conway, the Wood, or Ridgway.
2. To make a counter attack.
3. To meet flank attacks.
4. To protect a general retreat.

The key of the position is the hill north and east of Conway.

The left flank of the position is protected by the River Dee.

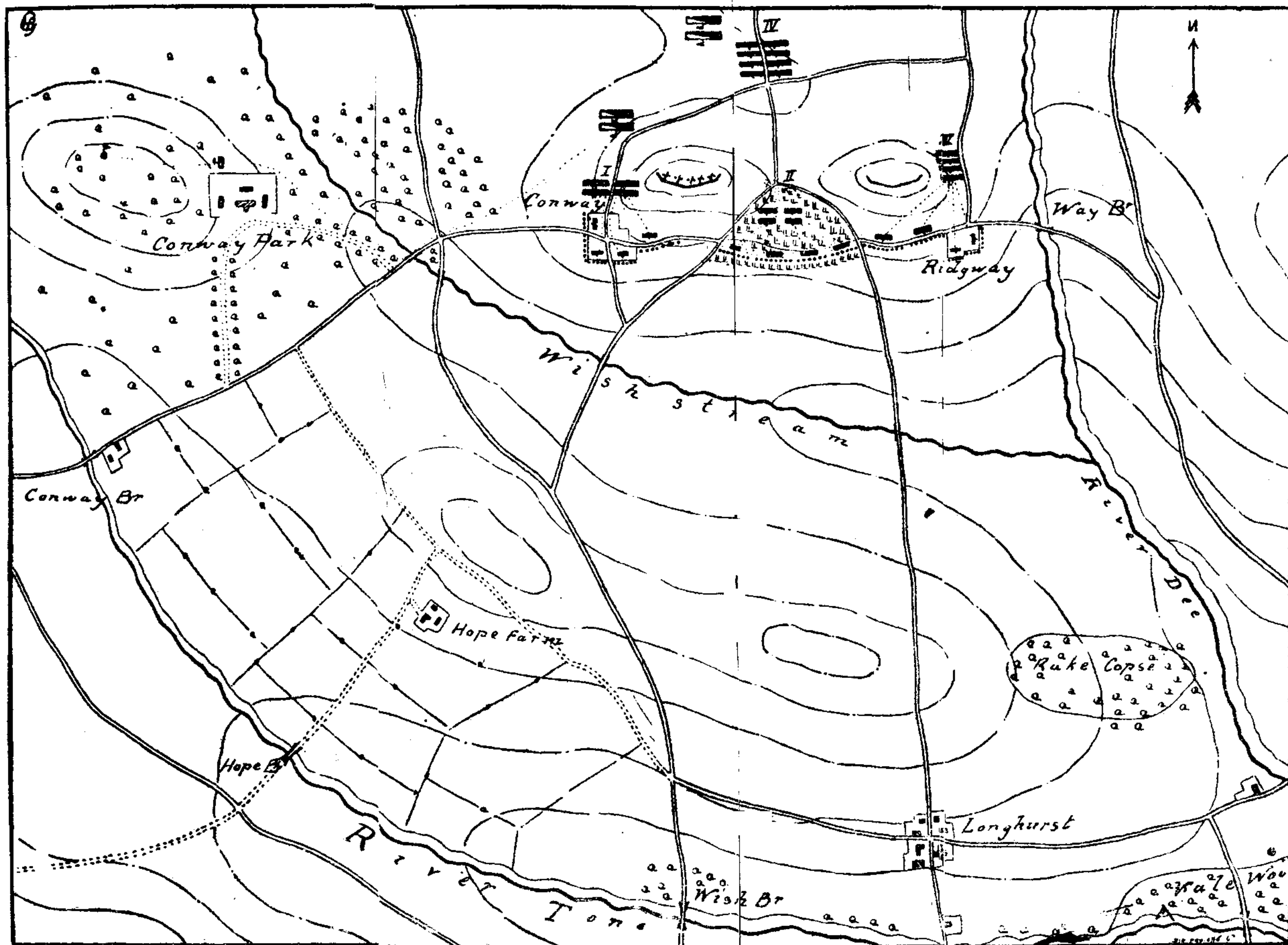
Example II.—An army corps and a cavalry brigade are available for the defence of the position facing east and south-east in front of Klenitz, Stracow, and Sucha (*vide* Map A).

Examine and report on the position under the following heads :—

- (a) Its suitability for active or passive defence (state reasons).
- (b) How you would propose to divide the position into sections for defence—detailing the infantry for first and second lines in each section.
- (c) Discuss, very briefly, the advanced posts, and how you propose to deal with them.
- (d) Describe how you would protect the flanks.
- (e) State in general terms the probable action of the cavalry and horse artillery.
- (f) Give the strength of your third line or general reserves, according to whether your defence is active or passive.
- (g) Mention where you would construct field works or redoubts.

Show on the Map :—

- (1) The positions of your batteries and machine guns.
- (2) Indicate by a red line, approximately, the ground occupied by troops of the first line, and show the distribution of your second and third line troops. If your defence is active, show by red arrows the direction of any contemplated grand counter attack.



Answer.

- (a) The position is about four miles in extent, including the advance post Ob. Cernutek. The Bistritz Brook is merely a stream with numerous bridges over it, and is not a serious obstacle to counter attacks. The force available is ample for active defence. There is covered communication in rear of the position, which favours the concealment of troops. The ground in front favours the employment of all arms. The village of Ob. Cernutek if strongly held will protect the exposed flank of a counter attack round the left flank, which can also be supported by artillery from the heights on both sides of the Kosinsky valley. A counter attack round the left flank of the position will not uncover the line of retreat on Milowitz, nor the rallying position in rear of Dub heights. The southern portion of the position favours passive defence.

Decision.—The defence should be active.

- (b) Into two sections, each to be held by one division. The right section would extend from Sucha to Mzan, and the left section Dub to Wood north of Klenitz.

DETAIL OF TROOPS.

First Division.—Sucha—Mzan.

Right Brigade.

In First Line.—Two battalions (including company at Johanneshof).

In Second Line.—Two battalions.

Left Brigade.

In Second Line.—One battalion.

Second Division.—Dub—Wood north of Klenitz.

Right Brigade.

In First Line.—Two battalions.

In Second Line.—Two battalions.

Left Brigade.

In First Line.—Three battalions.

In Second Line.—One battalion.

- (c) (1) Wood marked (F) would afford cover for enemy; but he ought not to be able to issue from it. It would therefore serve to absorb his troops.

Hold the outer edge temporarily with three companies, and entangle the near edge. Construct an open field work, and entrench in rear, and make epaulements for three batteries. Troops holding F Wood and field work furnished by the corps battalion.

- (2) Johanneshof House and enclosure prepared for defence and garrisoned by one company of No. 2 battalion, 1st brigade, 1st division.
- (3) The retreat from the villages of Mokrowous and Dohalicka is very open, and renders these villages undesirable to hold; besides, they would require large garrisons. The Brick Kiln (Zgl) might be demolished, and Kopanina mined, at any rate not held, as the retreat is exposed.
- (4) Mzan is part of the main position. The Zucker fabrik might be burnt or mined, it should catch fire easily. The copses in front of Mzan entangled.

(5) Ob. Cernutek is a very important advanced post in front of left flank, commanding the approaches on this side. It would also protect the outer flank of a counter attack on this side. It should be strongly fortified and garrisoned by two battalions of 2nd brigade, 2nd division.

Unt. Cernutek might be held temporarily by a company of mounted infantry when the cavalry withdraw from the front.

(6) Roskos Hill, and hill 780 in front of Ob. Cernutek, would both be advanced artillery positions.

(d) *Right Flank.*—F Wood temporarily held and inner edge entangled, company of mounted infantry at Tun. Open field work and entrenchments, three batteries of artillery, corps battalion of Infantry, 3rd battalion, 1st brigade, 1st division, and a regiment of cavalry and cavalry brigade battery of horse artillery when withdrawn from the front.

Left Flank.—One company mounted infantry at Unt. Cernutek, three batteries R.H.A. Hill 780 1st position. Hill 775 2nd position, 2nd brigade, 2nd division, and two regiments of cavalry.

(e) The action of the cavalry and horse artillery would be in front, and on both flanks of the outposts, watching all the approaches, and preventing the hostile advanced cavalry from reconnoitring, while at the same time they would endeavour to break through the enemy's advanced cavalry, and discover the disposition of his troops in rear of it.

They would oppose any reconnaissance in force. The action of the horse artillery would be directed against all formed bodies of the enemy's cavalry, and any of his advanced troops that offer a target.

The combined action of cavalry and horse artillery might do much to delay the advance by forcing the assailants to deploy their advanced guards. The mounted infantry would be best employed holding the bridges over the Bistritz, and covering the withdrawal of the guns and cavalry.

When driven in, the horse artillery batteries would take part in the defence of the flanks of the main position, from whence they can easily co-operate with the cavalry should they be required to do so later on.

The action of the cavalry during the main battle will be on the flanks, warding off the enemy's cavalry, and seizing opportunities for attacking the outer flank of any out-flanking movements. The cavalry on both flanks will push out reconnoitring groups as far as possible to gain information.

The *divisional* squadrons may sometimes towards the close of a battle deliver local counter attacks, and will be usefully employed in keeping their generals informed of all that happens to the neighbouring troops, and keeping up connection between troops that become detached during the fight. They should also watch for any fleeting opportunities to fall suddenly upon the enemy's guns when they

are in motion, or his infantry when it is in disorder.

In the event of success the cavalry and horse artillery will follow up the retreating enemy, and keep touch with him at all risks, endeavouring to get round the flanks of his rear guard.

In the event of a retreat, the cavalry and horse artillery will cover the withdrawal of the infantry and field artillery, and may be called upon to charge at all hazards if necessary, in order to gain time for the other troops to get away.

(f) The third line would consist of the infantry of the 3rd division disposed as shown on the map. Two battalions 1st brigade at Neresow, two battalions at Stracow. 2nd brigade at Klenitz.

For positions of batteries, *vide* map. The batteries shown include the corps artillery, the artillery of the 3rd division, and the horse artillery battery belonging to the cavalry brigade.

The machine guns are also posted on the map.

For distribution of the three lines, and direction of contemplated grand counter attack, *vide* map.

N.B.—The red line round Dub is intended to show that Dub is prepared for defence. The troops are placed as near to the places they would occupy as possible without spoiling the map. The infantry in the first line would be entrenched where necessary.

Example III.—A force of 20,000 men occupies the position O.P., facing east, and standing on the defensive (see Plate XXII.)

Examine to what extent the existence of Maxtone Village and Hawk Wood will affect the value of this position, and state how you would propose to deal with each of them.

(*Answer* by Lieut.-Colonel T. J. R. Mallock, p.s.c., late Royal Fusiliers.)

Maxtone Village.

Advantages.—Blocks the main road and railway leading to the position. Retreat from it in the direction of P. comparatively easy, covered by form of ground and artillery support. Infantry fire from exterior edge would impede, but at a very long range, enemy taking up his artillery position on heights north-east of Owl Wood.

Disadvantages.—Situated in a hollow; exposed to artillery fire; enemy can approach north side to within 400 yards without being seen; 1,500 yards from main position, therefore beyond infantry-supporting distance; enemy can attack east side unexposed to artillery fire. Perimeter requiring to be defended, 1,000 yards; therefore 2,000 men required at least—probably, owing to isolated position, double that number—and main position, from its extent, seems to require all the force at disposal.

Is the possession of the village, railway line, etc., of vital importance to the defence?

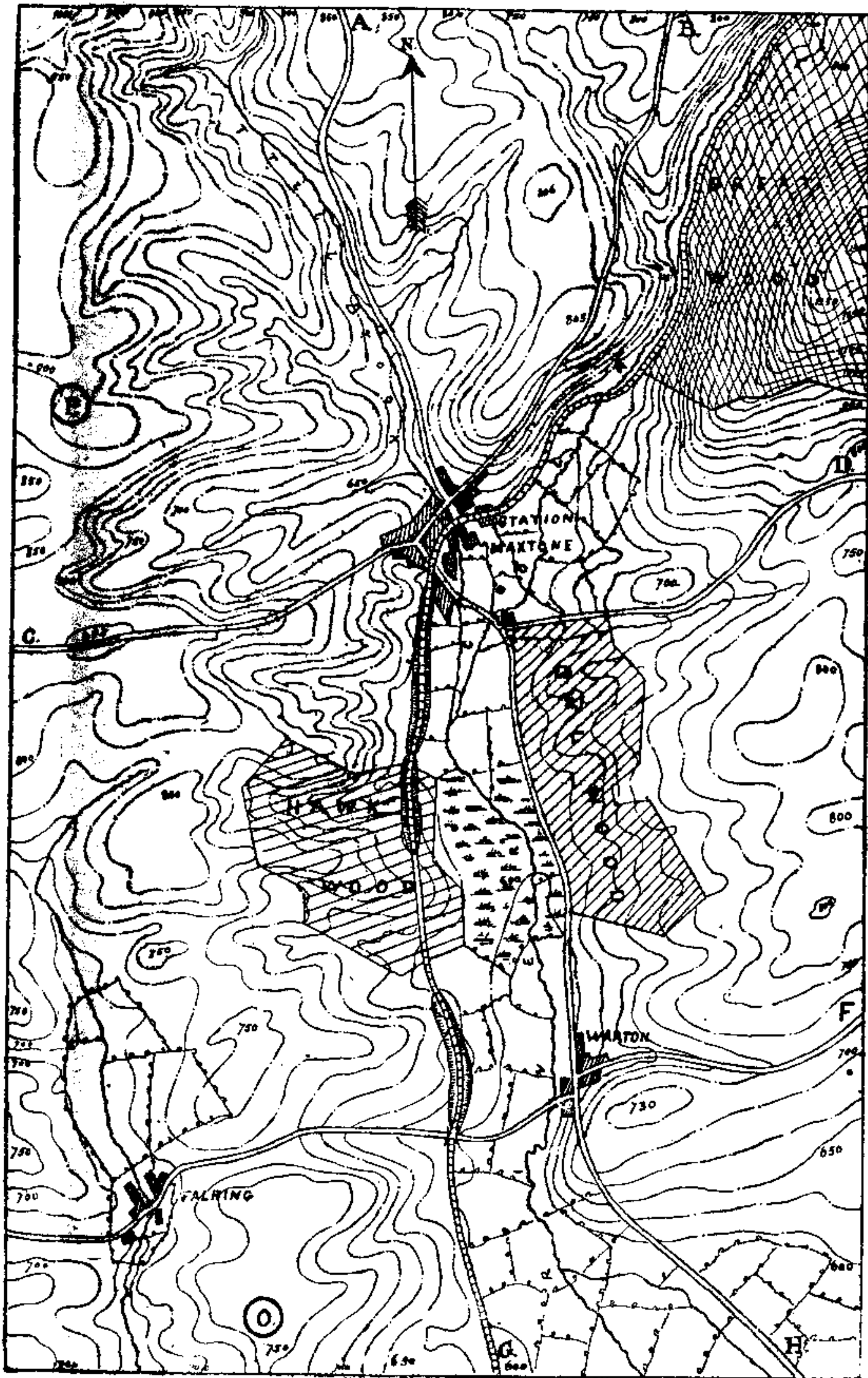
Presumably *not*, or his position would not be where it is.

Decision.—Roughly place outer line of village in a state of defence, and hold it temporarily as an advanced post only.

JUNE, 1890.

PLATE XXII.

ADMISSION TO THE STAFF COLLEGE.



Scale (except for Question 4, Second Paper), 1½ inches to 1 mile.

Hawk Wood.

Disadvantages.—Approaches to within 200 yards of main position; little to gain by defence of front line (after enemy's scouts report marsh), or by defence of flanks, as view is restricted by the formation of the ground. Enemy once in possession of wood, under control, might rush the position.

Advantages.—Cover to defenders from artillery fire; long range fire from front edge might hinder enemy taking up his artillery position on eastern heights, and could not be interfered with. Small number of men required to do this owing to marsh in front.

Protects, to a certain extent, the infantry defence of crest line from artillery fire. Would absorb a large number of attacking force if left undefended.

Decision.—Groups of sharpshooters along front edge; 200 to 300 yards of near edge cleared, and a line of defence organised in rear.

CHAPTER XIV.

THE ATTACK BY THE THREE ARMS.

The Encounter Between Troops in Motion.

IN the offensive a fundamental distinction should be drawn between the attack on a fully developed front, well prepared for defence, and the encounter between troops in motion.

“The encounter between bodies of troops in motion, so frequent in war, develops itself from the column of march, against an opponent who is also deploying.

“In such engagements the leading troops should gain the requisite time and space, to enable the columns to deploy.

“On these occasions the subordinate leaders (advanced guard commanders, &c.) should only exercise such a measure of independent action as is admissible without interfering with the *connection* between the progressive development of the whole force and that of the leading troops. It is in this spirit that the company at the head of a battalion acts. The same occurs at the head of an advanced guard, &c. On the one hand the object is to forestall the enemy in his deployment for the fight and *delay him*, while on the other hand the independent action of the leading troops should be restricted, so as not to interfere with the intentions of the commander of the main body.

"It is thus apparent how important it is that the commencement of the encounter between troops in motion should find the commander at the head of the column. The immediate issue of orders for the conduct of the fight will thereby be rendered possible.

"The attack should be delayed as little as possible by the deployment for the fight. Preparatory extensions from the halt only cause delay."*

Large bodies of infantry when there is any possibility of contact with the enemy will be covered by what is now called *a screen of troops* in extended order, with supports, and if necessary a reserve. This screen differs only from the old skirmishers who were intended to feel for the enemy, in that, at any moment the troops comprising it may be developed into a formation for attack, and thus the forward movement would not be delayed should an immediate attack be decided on.

The course ultimately taken by the leading troops should depend on the decision of the commander of the main body, who will decide whether to proceed with the attack, take up a defensive attitude, or retire. In all cases the leading troops must be prepared to delay the enemy, and stop his advance, acting either as an advanced guard or as a rear guard.

The Attack on an Enemy in Position.

Should the enemy have nearly completed his deployment, or should he be already in position, the extension of the foremost troops should be carried out with more caution. The front should be increased gradually, and the general's orders awaited.

The attack on an enemy in position should be preceded

* German Field Exercise.

by the most careful reconnaissance, carried out under cover of the advanced cavalry, or by a specially detailed reconnaissance in force, or by the advanced guard troops, reinforced if necessary, driving back the enemy's outposts. In any case, accurate information must, if possible, be obtained, and at all risks.

Meanwhile the assailant's troops as they arrive will be massed, beyond range of the enemy's advanced artillery, in the most convenient situations, every advantage being taken that the ground admits of to conceal their distribution.

Moral conditions being about equal, the considerations which should regulate the strength of the force of infantry for the attack on a position are :—

- I. The strength of the position, and the extent of front to be attacked.
- II. Whether the position is to be enveloped, turned, or carried in front.
- III. The extent of open space which has to be passed over under fire.
- IV. The nature of the artillery positions within range of the position.
- V. If the assailants are weak in artillery more infantry are necessary.
- VI. The number of points which are to be attacked simultaneously.

As a rough calculation there should be from four to six men per yard of front *attacked*, including those intended to assault.

The Action of the Cavalry.

A battle (unless the ground prohibits) will usually commence with a cavalry and horse artillery fight in front of the defenders' outposts and round their flanks.

There is no arm which is so entirely dependent on ground for its action as cavalry. A want of appreciation of this important requirement has often led to a pitiful sacrifice of men and horses. Napoleon said that the five things essential to the success of a charge were: "Ground, opportunity, pace, cohesion, and a reserve."

The first duty of cavalry on the field of battle has always been to endeavour to defeat the enemy's squadrons, and obtain information regarding his positions and the distribution of his forces, and at the same time cover and conceal the movements of its own army. In this work of reconnoitring cavalry will in future be hampered by the absence of smoke to indicate the whereabouts of the enemy's piquets. A cavalry patrol may be destroyed by an infantry piquet without knowledge of the quarter from whence the fire proceeds, but nevertheless its action must be vigorous, and, should a favourable opportunity offer, cavalry will not hesitate to charge advanced bodies of the enemy in order to try and discover what is behind them.

The next duty of cavalry is to endeavour to gain the flanks and rear of the enemy in conjunction with horse artillery, to gain information and create a diversion, and to protect the flanks of its own army, especially the advanced fractions, from surprise.

Subsequently, the ground being suitable for its action, and the general having explained to his cavalry leader his proposed plan of attack, the cavalry will co-operate, independently, on the flanks with the artillery and infantry throughout the different phases of the battle, and assist and support any movement of the other arms made with the object of outflanking the enemy.

It is the duty of cavalry to give timely warning of turning movements on the part of the enemy, and

to push forward detachments to watch the roads by which reinforcements might arrive for the enemy, and retard and harass them.

When the enemy is worsted, and is evidently preparing to retire, all the available cavalry, divisional and otherwise, together with the horse artillery, must be held in readiness to be launched in vigorous pursuit.

Should a retreat be ordered, and the country be suitable to its employment, cavalry forms the rear-most portion of the rear-guard which is organised to cover it.

The principles of cavalry tactics have remained unaltered, and its chief *rôle* on the field of battle will still be on the flanks of its own army, seizing favourable opportunities for surprising artillery and advanced infantry, and for co-operating *independently* with the other arms; while to reap the fruits of a victory, or to cover a retreat, a commander will always look to his cavalry, if the ground admits of its action.

The opportunities for cavalry to act are so fleeting that it is advisable to give a general idea of the use of cavalry on the field of battle without attempting to allot a special *rôle* to it in each successive stage. When not operating on the flanks, the place for cavalry is with the reserve, whence it can be transferred to any part of the field if required.

The Action of the Advanced Guards.

The cavalry having withdrawn to the flanks, the advanced guards, reinforced if necessary, drive in the enemy's outposts, and the artillery shells his advanced posts, if he has any.

“At the commencement of an action it may be necessary to employ guns to check an enemy's advanced troops, or to force on an action by detaining troops which are beginning to retire, or to assist the General in his reconnaissance by drawing the fire of the enemy's batteries. But any such use of artillery should be temporary; the ranges should be usually distant and ammunition should be carefully economised.”*

“During this preliminary action of the advanced troops, the General (unless satisfied that he knows all about the enemy and the positions he holds) will complete his reconnaissance, and having decided on his plan of attack, order the whole of the batteries to advance simultaneously, as far as is possible, to a previously selected position within ‘medium’ range (3,500 to 2,500 yards) of the enemy's batteries. The exact range will probably be determined by the lie of the ground.”*

The Preparation of the Infantry Attack by the Artillery.

The first phase of the artillery attack is an attempt to overcome the artillery of the enemy. In order to do this, fire must *not* be concentrated on *one* portion of the opposing artillery while the other portion is left alone. The distribution of fire at first must be regulated with a view to its subsequent concentration against important tactical points, after a superiority over the enemy's artillery has been established. A great preponderance of artillery like that possessed by the Germans at Sedan may admit of an early concentration of batteries; but in discussing the theory of tactics we must assume that the opposing sides are about equally matched, taking into consideration the

* Artillery Drill Book, 1896.

facilities for ranging possessed by the defenders and the protection afforded them by epaulements or gun-pits. The best authorities, as pointed out by Captain W. L. White, Royal Artillery, in an able article in the June 1893 number of the "United Service Magazine" agree that it is contrary to the object of the artillery duel only to subdue one portion of a long line of opposing artillery, leaving the remainder to operate as they like.

The enemy's artillery should be engaged along its entire front, until it is practically overcome; and concentration ought not to begin until a superiority of fire has been established.

During the artillery duel the General will complete his preparations for the attack. There are three ways of attacking a position:—

First.—To envelop a position, either by advancing from different directions or by causing the troops in rear of the fighting line to join in the attack, and gradually close on it, without exposing a flank to counter-attack, a plan which, to quote from General von Boguslawski, "can only be attempted when local circumstances favour your infantry. At Sedan we (Germans) certainly surrounded and compelled to surrender an army of 134,000 with one of 168,000. But here, apart from the extraordinary genius of our leaders, we were favoured by two circumstances. The first was the Meuse covering a large extent of our line, the second our great superiority in artillery, to the fire of which the enveloping position gave peculiar scope. We cannot, however, always have a Meuse, always be confronted by vacillating generalship, nor have we now the superiority in weapons we had then."

"There is another very grave objection to this excessive deployment of infantry.

“In 1866, as may be easily believed, we (Prussians) never ran out of ammunition. In 1870, however, we came to the end of our cartridges again and again. It is therefore humanly probable that, despite the greater number of rounds carried by the soldiers, in the wars of the future this exhaustion will be even still more frequent.”

“Neither fire discipline—which in battle, even with the best troops, nearly vanishes—nor any arrangements we can make for bringing up ammunition can entirely guard against its exhaustion. The battalion ammunition-carts can accompany us up to within a few thousand metres; but you cannot reckon on the reserve ammunition columns. It is only in defensive positions that these last can be brought close up. But, says someone, the reserve ammunition from the carts should be distributed among the men before going into action. A very good idea if the fight comes off that day.

“Even supposing the cart ammunition to have been distributed, the supposition is only theoretical that the battalions have now sufficient rounds for a one-day’s battle. If they have not the fire will begin to slacken, and if a bold enemy, seizing this moment, makes a determined counter-attack, he will shatter our long thin lines. Let the advocates of these linear tactics recall their war experiences, the mutual attacks and counter-attacks at Woerth, Spicheren, and on the Mance—the irregular ebb and flow of these battles. Such sudden and unexpected counter-attacks, if made, will always be effective, for should the ammunition be exhausted, the counter-attack can only be guarded against by the supports of the second or third line.

Deep fighting formation cannot, therefore, as many would have it, be discarded. Napoleon’s oft-quoted words,

‘Le feu est tout, le reste est peu,’ referred to the repulse of cavalry charges. They may, now, however, be applied to all phases of the battle, but the bayonet still counts for something. Let us train our officers to watch for the slackening of the enemy’s fire, for this is the critical moment in the present fighting tactics where the bayonet should be brought into play.” *

Second.—To make a holding attack in front, and a wide and deep turning movement round one or both flanks. This plan implies a considerable numerical superiority, and entails the most careful and accurate calculations of time, to ensure the combined action between the front and flank attacks, without which they become isolated, and liable to be beaten in detail.

The turning movement can only be made successfully by detaching a part of the force, when out of sight of the enemy. For, if the movement is not a surprise, its effect is greatly marred. The turning movement must also be “wide and deep,” because the defenders’ flanks will be defended by earthworks when not naturally strong. Thus a general is committed to what are virtually two attacks and for this purpose he must divide his forces. Either force will be liable to the defenders’ counter-attack, and, therefore, each must be strong enough to hold its own against any counter-attack which it is possible for the defenders to make at the moment when they are at their widest point of separation.

Still, if a *turning movement* is accurately timed, and secretly and skilfully executed so as to ensure the two attacks—that in *front* of a position and that on its exposed flank—being simultaneously delivered, it may be attempted with a fair prospect of success.

* “The Attack of the Future.” By General von Bo.
Translated by Captain J. M. Gawne.

Third.—The third course open to the assailants is perhaps that most generally adopted, and when their preponderance in numbers is not great, it is certainly the least risky. It is to make a demonstration along the front of the defenders' position to keep them generally occupied, especially by artillery fire, and by means of reserves to attack a vital point, if possible, with local superiority.

In order to do this, the commander must realize that he has committed himself to a direct attack, and must throw his reserves into the fight exactly at the right moment. Battalions, brigades, divisions, must be launched, not at uncertain intervals, but as nearly together as possible.

In planning an attack, a general is influenced in his decision as to which of these three courses he will adopt by the following considerations :—

1st. By the configuration of the ground, and the amount of lateral communication between the centre and flanks of his troops while advancing against the position, and the artillery positions from whence to cover his attacks.

2nd. The quality of his own troops.

3rd. The quality of the defenders' troops.

4th. The dispositions of the defenders.

The two principal considerations will be :—

(I.) The dispositions of the enemy.

(II.) The formation of the ground.

When once the action has commenced, the accidents of war and the mistakes of either side tend to modify the original design, and an experienced commander will make considerable allowance for the changes and chances of

war, and retain as long as possible a substantial reserve under his own immediate orders.

The General having decided on his plan of attack, will issue his final orders for the distribution of his troops, and those intended to make a turning or flank attack will be marched off in good time to reach their stations.

Distribution of Infantry Prior to Attack.

“The general principle on which troops are disposed for attack is that they are formed in greater strength, especially in depth, opposite the point or points where it is intended to carry the attack home, and in lesser strength opposite the portions of the enemy’s line where it is intended merely to demonstrate and hold him to his ground.”

Attacking infantry is divided into three lines distributed in depth.

The first line to develop and sustain the attack.

The second line to support and carry it out.

The third line to confirm success, cover a retreat, or meet any emergency.

The first line should be strong enough to sustain its firing line with its own supports and reserves, and to do this these supports and reserves must be pushed up closer to the firing line at critical moments.

The second line if the ground admits will be disposed in echelons in rear of a flank of the first line. If there is not room for this, or in the case of a central unit of an attacking force, in rear of a flank opposite the places to be carried by assault. (Units of attack are divisions, brigades, or battalions, according to the size of the attacking force.)

Dense formations for troops advancing are undesirable, and, unless the ground affords cover, the echelons should

be kept as far apart as possible until ordered to close up for the assault.

The third line will generally be sufficiently far back to follow in such formation as the ground admits of. Its place will vary with the requirements of the battle, but its most effective action will generally be from a flank.

“The strength of the *supports* and *firing line* in the first line should at the outset be about the same, and that of the reserves about equal to the supports and firing line together.

“The troops in the second line will ordinarily be about equal to, or slightly greater than, those in the first line, and the third line will vary from one-fifth of the whole force employed to, in a large force, one-third, or even one-half, if the enemy be outnumbered.”

Frontage of Troops Attacking.

“The actual front of an attacking force can only be settled on the ground, but the maximum frontage should be that of the troops composing the first line, if deployed (for manœuvre) two deep.

“The front of a brigade ordered to *assault* should not exceed a third of a mile. The front of a division with two brigades side-by-side, ordered to assault, would be about half-a-mile. When the attack is not to be pushed home, a brigade will occupy a frontage of about half-a-mile and a division about a mile. Thus in an army corps, with two divisions side-by-side, with one of which it is intended to assault, the frontage would be about one-and-a-half miles, thus leaving the third division as a general reserve for a flank or other movement.”*

* Infantry Drill Book, 1896.

The front of a battalion 800 strong attacking is 405 yards, worked out as follows: 27 inches or $\frac{3}{4}$ of a yard for each file in line + 2 paces or $1\frac{2}{3}$ yards' interval between companies, sections and subsections.

In the final orders for the attack a special part in it should be allotted to each division, according to whether it is intended to form part of the general attack or is detailed to assault, and the *general plan* of the whole attack, as well as the particular share in it allotted to each division and brigade, should be communicated to the divisional commanders. The orders will be transmitted through the brigadiers to the commanders of battalions, and through them to the commanders of companies, who will explain and impress the same on all ranks of their companies.

The Second Phase of the Artillery Preparation.

The order of the attack having been communicated to the chiefs of batteries as soon as the enemy's artillery is sufficiently beaten down, the fire of the greater part of the guns will be concentrated upon the points of attack.

“A partial advance of the artillery may be necessary. In any case time should be given for this final stage of the artillery preparation to have full effect.

“The number of batteries turned upon the points of attack will depend upon the extent to which the enemy's guns have been silenced. As many as possible should be used; but there must be batteries to keep down guns continuing or renewing their fire, and especially to crush guns firing on the advancing infantry.”*

Artillery Support of the Infantry Attack.

When the order is given for the infantry to advance, every gun, regardless of fire from the enemy's artillery,

* Artillery Drill Book, 1896.

should at once be turned upon the points selected for attack, and upon any troops which may take the infantry advance in flank."

Special vigilance is now necessary; the fire should be accelerated if the enemy unmask any reserves, *and pushed to its utmost limit* if the attacking column meets any unforeseen resistance.

Such support is indispensable, because from positions in rear (even in the absence of smoke) it will be impossible to distinguish friend from foe. *It is possible* to advance the guns, because the enemy's infantry will now be occupied.

If feasible, the new positions for the artillery should be on the flank of the line of the infantry advance. The first guns to advance should be taken from the flank furthest from the infantry.

Machine Guns.

The Infantry Drill Book says: "Machine guns will not accompany the units to which they are attached for administrative purposes, but will be employed as directed by the officer in command of the brigade or division to which these units belong.

"In deciding how they shall be disposed, these officers will be guided by the nature of the ground and by the general plan for attack. The ground selected should, if practicable, admit of the machine guns bringing an effective fire on the portion of the enemy's position to be *assaulted*. It will often be advantageous to select ground outflanking the enemy's line, so that the fire of the machine guns can enfilade it, and can also be directed if necessary against any counter-attack made by the defenders' troops. In selecting the ground, it should be

borne in mind that machine guns on their way to it must keep out of the enemy's view, and when in position should be exposed as little as possible to hostile fire. It will not, generally, be desirable to place more than two machine guns in action together, and *never* when the ground is exposed to artillery fire." Undoubtedly smokeless powder ought to enable machine guns to remain longer in action without being ranged by artillery. Machine guns ought not, however, to be expected to take the place of skirmishers, nor that of artillery.

The Infantry Advance.

Previous to the infantry advancing to the attack commanders of battalions should satisfy themselves that the leaders of the firing line are acquainted with the general plan of attack, and with the front to be attacked, and will also point out to them where the ground will favour advance, and from what direction counter attacks, especially sudden charges of small bodies of the enemy's cavalry, may be expected. Special vigilance is necessary on the flanks to guard against these attacks.

Suitable rallying points in front of the enemy's position should be carefully noted, and these places should be seized, for it is behind them that cohesion between the different units of the attack can be re-established, and fresh deployments arranged for. The premature extensions of large bodies of infantry must be specially guarded against. There are two reasons only for extending more than a small fraction, just sufficient in the first instance to occupy the fighting front of even a company:—

- (i.) To develop an effective fire.
- (ii.) To avoid unnecessary loss from the fire of the enemy. The importance of keeping the largest possible number of troops in hand till required should never be lost sight of.

To troops who have never been called upon to advance against the fire of breech-loaders, the extreme importance of rallying places can hardly be overrated. Engineers may frequently be employed during an attack on a position strengthening defensive points when captured, by the construction of entrenchments and the removal of obstacles. While advancing, leaders in the firing line should watch for any cessation of fire on the part of the enemy to rush forward with their sections, half-companies, or companies. The movements of the successive lines following in rear should be regulated by those in front of them in such proximity as may be deemed advisable to encourage the fighting line to keep on advancing. So long as a steady advance is maintained, and cohesion between units exists, the attack is progressing favourably; but the forward movement must be kept up at all costs by bringing up fresh reinforcements the moment there is any sign of wavering.

Wavering will generally be caused by the enemy's fire, but not necessarily; troops waver when they begin to fancy that they are not going to be supported. Reinforcements can often be brought close up to the firing line without extending them, and the principle that reserves should be kept in hand as much as possible should always be borne in mind, for until they can shoot with effect their extension is only admissible in order to avoid heavy loss.

In the attack one of the chief dangers to be guarded against is, that untrained company leaders may, through inexperience, fail to grasp the general idea, and lose touch with the companies on their right and left.

The spirit of the infantry attack may be briefly summed up as follows:—

From start to finish the forward movement of a bold

attack must be maintained, the position assailed must be neared, a destructive fire directed on it at the closest possible range, and the charge delivered. Proper direction must be kept, and the firing line must be fed and encouraged to keep on advancing by the troops in rear, in spite of the enemy's fire and of any disadvantages of ground which must be got over.

Meeting Counter Attacks.

Serious counter attacks directed against the flanks must be checked by the troops actually threatened, if within range, but these counter attacks should be attacked if possible in flank by troops brought up from behind the second line of the attack. Thus the object of the counter attack may be frustrated, and the forward movement of the first and second lines not impeded.

Procedure After the Position is Captured.

The assaulting troops should be quickly rallied, and fire discipline re-established, when all formed bodies will be directed to fire volleys on the retiring enemy and especially upon any reserves. Meanwhile every available gun should push forward to shell the retiring enemy, and crush by a concentrated fire any attempt at counter attack. The third line coming up will relieve the battalions of the first line and those of the second that have suffered severely, and make good the captured position. A considerable amount of confusion is inevitable, but the best troops are those who rally quickly either after a victory or after a defeat.

Pursuit.

The immediate pursuit will depend on the disorgani-

sation of the enemy, and what sort of rallying position he retires to, whether he has organised a rear guard and is retreating in good order covered by his artillery and cavalry, the exhaustion of the victors, the time of day, the approach of darkness, the weather, the state of the roads, the nature of the country, and the amount of cavalry and horse artillery available to follow up the enemy with.

The subsequent fruits of victory depend chiefly on the energy displayed by the cavalry and horse artillery sent in pursuit. These troops should endeavour by every means to prevent the enemy occupying defiles and passing over rivers behind which he can reorganise; every available gun should be brought into action at decisive ranges to shell troops retiring in formation.

Under all circumstances the cavalry must keep touch with the beaten army, and, if checked by a strong rear guard in position, should endeavour to get round it and still find out in which direction the main army is retreating. Keeping touch with a retreating army is one of the most important duties cavalry can be called on to perform.

Precautions in Case of a Repulse.

At the moment of closing on the defenders' position, all three arms, each well supported, must be well up to co-operate. We have seen how entirely success depends on their co-operation. In the event of the assault being repulsed, the artillery unlimbered and loaded, which previous to the final charge has come up to the best supporting distance, must be ready to open fire again as soon as the front is clear of their own infantry. The third line of infantry must be rapidly disposed to cover the retreat of the first and second lines, now all mixed up in

confusion. This will be best done from a flank, but a portion should be deployed behind the centre, the repulsed troops falling back round its flanks. The cavalry, if closed in on the flanks, will be ready to charge the flanks of the enemy issuing out in counter attack, and to sacrifice itself if called upon to do so, to save the guns and gain time for the beaten infantry to be rallied, or for a rear guard to be formed.

The different arms must never forget that each only exists to help the other, and that the efficiency of an army is measured by the product of the efficiency of each arm.

A failure to co-operate at such a critical moment may lead to a total rout, and only those who have seen it can picture the unutterable confusion of a beaten and disorganised army at the moment when it becomes a fugitive rabble.

It is impossible for the different arms to co-operate unless their leaders are thoroughly acquainted with the principles of combined tactics.

Lieutenant Greene, in his chapter on the "Attack on Fortified Positions," quotes the following order of the day given by General Skobelev to his troops, the evening before the battle of Lovtcha, September 3rd, 1877, when he states that 22,000 Russians attacked about 15,000 Turks. The artillery cannonade lasted from 5 A.M. to 3.20 P.M. The assault was then made by the infantry formed in two lines of company columns, preceded by skirmishers. The attack was completely successful, and by nightfall the infantry had destroyed one-fourth of the defenders, and put the rest to a disorderly flight.

General Skobelev's Order of the Day.

"In the first part of the action which is about to take place the preponderating rôle belongs to the artillery.

The order of the attack will be communicated to the chiefs of batteries, who are recommended not to scatter their artillery fire. When the infantry moves forward to the attack the artillery will support it with all its efforts. Special vigilance is then necessary; the fire will be accelerated if the enemy should unmask any reserves, and pushed to its utmost limit if the attacking column meets any unforeseen obstacles. When the distance permits Shrapnel will be used against the enemy's trenches and troops. The infantry must avoid disorder in the struggle, and make a careful distinction between the forward movement and the attack. Do not forget the necessity of aiding your comrades at any sacrifice. Do not waste your cartridges. Remember that the nature of the country renders it very difficult to supply ammunition. I mention once more to the infantry the necessity of order and silence in the fighting. Do not cry 'Hurrah' until you are close to the enemy and are preparing to charge him with the bayonet. I call the attention of all the soldiers to the fact that in an intrepid attack the losses are a minimum, and that a retreat, especially a retreat in disorder, results in great losses and in shame.

"This order will be read to every company in so far as it concerns the infantry."

"At the risk of repetition, it may be desirable to summarise the principles which it has been the writer's endeavour to illustrate in this chapter on the attack of a position. In the form of axioms they may be more easily remembered: All attacks should have 'decisive' results in view; therefore, attack vital points, and endeavour to bring masses to bear upon fractions.

"Demonstrate against and threaten other points; but remember that all feints, to be useful, must be closely combined with real attacks.

“Remember that an enemy must not only be driven from his positions, but rendered incapable of fighting again; and never attack with a fraction of your force when a short delay will enable you to attack with the whole.

“Protect your flanks with cavalry, and bring your massed guns within decisive range of vital points as quickly as possible.

“Avoid too great intervals in your line of battle; avoid disseminating your forces if the enemy can mass his troops against your fractions. Conceal your movements, and endeavour to turn a position in preference to forcing it in front. When closing on a position, the three arms, each well supported, must co-operate.

“The co-operation of the three arms is more important than their individual performances.

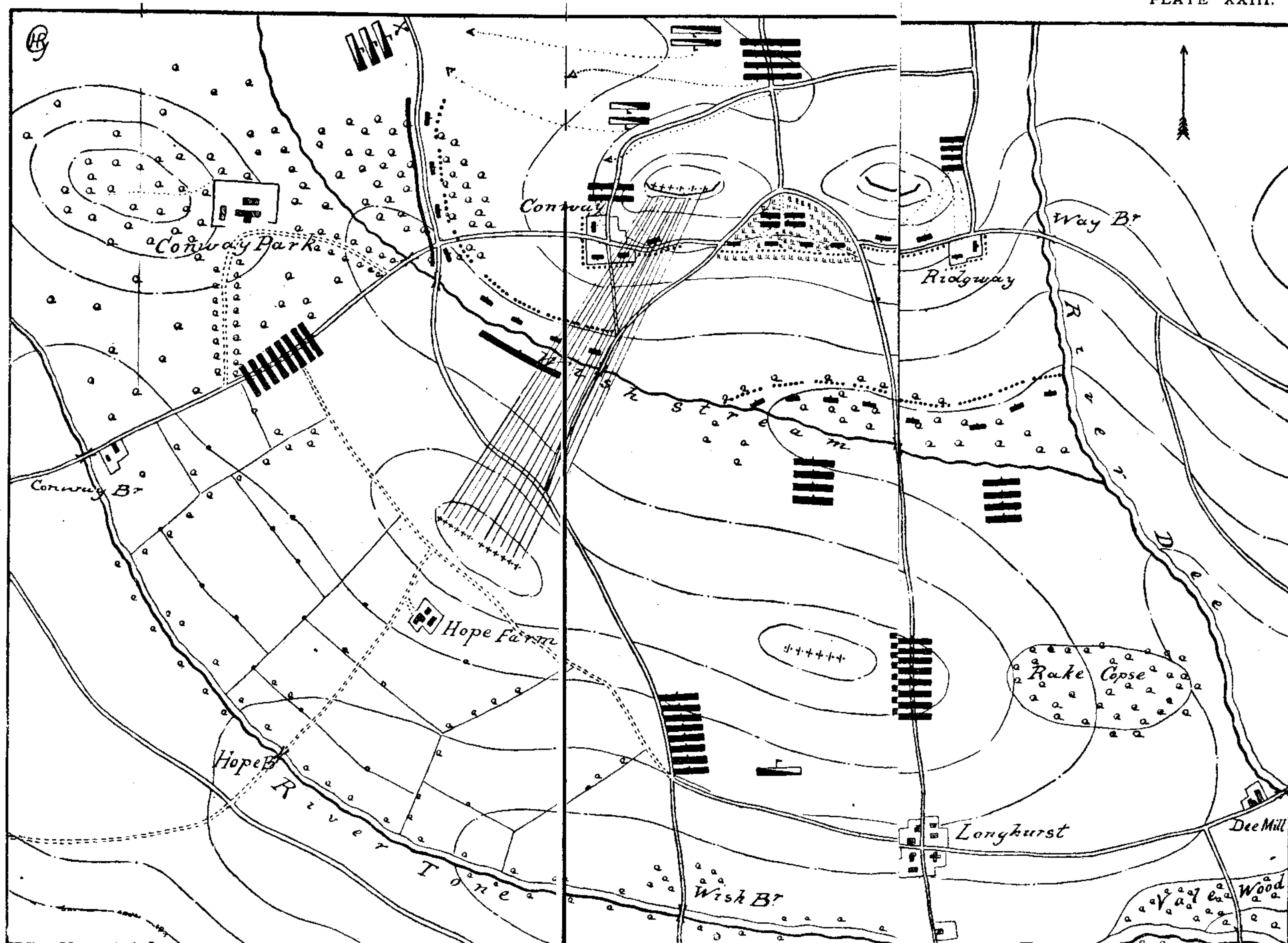
“Infantry should not assault a position until it has been well shaken by artillery.

“If the flanks of a position are approachable, they should be turned by cavalry and horse artillery, and, if possible, by infantry also.

“Never allow a beaten opponent to rally or recover himself, but follow him up, hitting him harder and harder as he gets weaker, until he surrenders.”

Plate XXIII. is intended to show the dispositions made by the commander of a division composed of seven* battalions of infantry, three batteries of artillery, and one regiment of cavalry for an attack upon a position: One brigade is told off to turn the enemy's right flank, the other holds him engaged in front. Each brigade forms its “first line” of two battalions, its “second line” of one battalion, and one battalion forms the “third line” and acts as a general reserve. One battery threatens Ridgway Farm and the wood in front. The remaining

* An infantry division is now composed of eight battalions.



guns, massed, open fire on enemy's artillery. Three squadrons cover the flank movement, and one is held in reserve where it can act as required, and keep up communication behind the two brigades.

Example I. (vide Map, Plate XXIV., Captains' Promotion, November, 1891).

"It may be assumed that the Fleet River is impassable below Morton, except at the bridges.

"You are in command of—

"One brigade of infantry and two batteries marching on one road ;

"Two regiments of cavalry in advance ; and are in pursuit of a defeated enemy.

"At 9 A.M. on the 7th September, 1891, as the head of the advanced guard (moving east on the road I.) debouches from Longside, your cavalry is standing as follows : First regiment at bridge 2 ; second regiment at bridge 7 ; each covered by scouts. At the above hour they report that the enemy (two battalions and three batteries) is in position on Garnant Down, and that the villages Morton and Parton are held by small parties of infantry. At the same moment your advanced guard is fired on from the south-east corner of Shaw Wood.

"State what dispositions you would make in order to force the enemy from his position, and calculate roughly by what hour those dispositions would be completed. Give your reasons for the plan proposed."

Answer.

Points for consideration of officer commanding before making his dispositions.

I. He is in pursuit.

II. His cavalry is in touch with what may be

III. The object of pursuit is to turn retirement into rout, and the essence of success in the present instance is to prevent the enemy gaining time.

IV. The cavalry must endeavour to work round the enemy's flanks, and ascertain the direction in which his main body has retreated. The artillery must be boldly handled, and ordered into action at a decisive range as quickly as possible.

V. The enemy is reported to be posted on a commanding position with supporting points, held weakly, in front and on his left flank. He has also a superior force of artillery. He must, therefore, be approached with some caution, at any rate, until the cavalry have ascertained whether he has any reserves concealed behind Garnant Down.

As the column is assumed to be in pursuit, it will, with a view to striking rapidly, march more concentrated than under ordinary circumstances.

The order of march and the length of road occupied would be roughly as follows:—

	Yds.
Vanguard, including Advanced Party, 1 company,	200
Distance,	200
Main Guard, 3 companies,	130
Distance,	400
Main Column, $3\frac{1}{2}$ battalions and 2 batteries,	1,798
<hr/>	
Total length of road occupied about	2,728.
<hr/>	

The commander of the advanced guard is with the vanguard. The General commanding is with the main guard of the advanced guard, and at 9 a.m., on receiving the report from his cavalry he issues the following orders:

To Officer Commanding 1st Hussars. (Bridge 7.)

Longside, September 7th, 1891.

9.5 A.M.

Push your patrols round Pewsey Wood, and find out whether the enemy has any reserves in rear of Garnant Down. Ascertain positively if his main body has retreated through Challow in an easterly direction. Leave half a squadron at Bridge 7. Do not advance your *main body* beyond forked roads at D until you get further instructions. Keep me well informed about enemy. I shall be with the artillery, where reports will reach me.

× Major-General.

Handed written to:

Orderly.

Pace: trot.

To Officer Commanding 2nd Hussars. (Bridge 2.)

Longside, September 7th, 1891.

9.10 A.M.

Push your patrols through Arden Forest, and find out if the enemy's main body has retreated through Shefford towards B. Report at once whether the path through Forest to Shefford is practicable for guns. If you have reason to believe that the retreat is through Challow, and not in a northerly direction, do not advance beyond Shefford until you get further instructions. If the enemy's retreat is through Challow, I will, if practicable, send you half a battery to support your action against his right flank. The guns will be under your orders. I shall be with the main artillery, where reports will reach me.

× Major-General.

Handed written to:

Orderly.

Pace: trot.

To the Commander of the Advanced Guard, who is the Commanding Officer of No. 1 Battalion. (Verbal Order.)

Clear Shaw Wood, and carry Morton by assault. Report to me when you have done so. I am going to order your left half battalion to support you. Do not advance beyond Morton with your battalion unless you receive further orders from me. When you have carried

Morton, hand over the command to your major, and report yourself to me, to receive my final instructions. I shall be with the artillery.

*To the Officer Commanding No. 2 Battalion of the
Main Column. (Verbal Order.)*

Carry Parton by assault, and remain there till you receive further orders.

We may assume that Morton and Parton are both carried, and as soon as Shaw Wood is cleared of the enemy, the officer commanding the artillery, having previously made his arrangements and reconnoitred the position, brings his two batteries into action at W. At 9.35 reports reach the General from the cavalry, to the effect that Shefford is unoccupied, the path through Arden Forest is practicable for guns, and that the enemy's retreat is through Challow. That he has two batteries on hill 1,003 (which have already come into action), and one battery at P, and that he has no reserves. About this time the enemy's battery at P comes into action. His infantry are holding the upper portion of Shape Copse and the western slopes of Garnant Down, with two companies flanking the battery at P.

9.40 A.M. The General dispatches half a battery of artillery at a trot through Arden Forest to Shefford, with directions to the commander to consider himself under the orders of the officer commanding the 2nd Hussars, to whom he conveys the following *written order* :—

“Threaten the enemy's right flank with your cavalry, supported by the half battery I send you. Your guns opening fire will be the signal for a general advance in front and on both flanks; be careful not to cloud the fire of the infantry advancing from Morton. You will not charge unless a favourable opportunity offers.”

By 10 A.M. the troops are distributed as follows:—

- $3\frac{1}{2}$ Squadrons 1st Hussars at D.
- $\frac{1}{2}$ Squadron at Bridges 6 and 7.
- 3 Squadrons 2nd Hussars behind Shefford.
- $\frac{1}{2}$ Squadron at Bridge 2.
- $\frac{1}{2}$ Squadron Escort to Half Battery at B.
- $1\frac{1}{2}$ Batteries at W.
- 2 Battalions at Parton.
- 1 Battalion at Morton.
- $\frac{1}{2}$ Battalion West Corner of Shape Copse.
- 2 Companies in reserve at Parton.
- 2 Companies in reserve at Morton.

The plan of action decided on by the General, and which has been communicated to all commanding officers, is to make a demonstration in front of Morton, combined with attacks from both flanks, supported by the artillery from W and B. If the enemy awaits the attack, the cavalry will charge him in rear and on both flanks as the infantry are closing on him. Should the enemy withdraw without permitting his infantry to become seriously engaged, the action of the cavalry will be to try and head him at some bridge or defile, and delay him in order to give time for the guns to come up. The pre-concerted signal for the general advance to attack would be the guns at B coming into action. The commanders of battalions will make their own arrangements with regard to ammunition.

The 2nd line artillery waggon, field hospital, and baggage will be at Longside.

The waggon and baggage clear of the village.

Ambulances established at Morton and Parton.

During the fight the General will remain near the artillery at W.

The reasons for the plan of attack are obvious: the

ground in front of Morton is open and unfavourable to a direct front attack. There is more cover on the right flank, and the enemy's retreat is threatened from this direction. The artillery at W covers the front and right attacks, and the half battery at B enfilades the enemy's main artillery position.

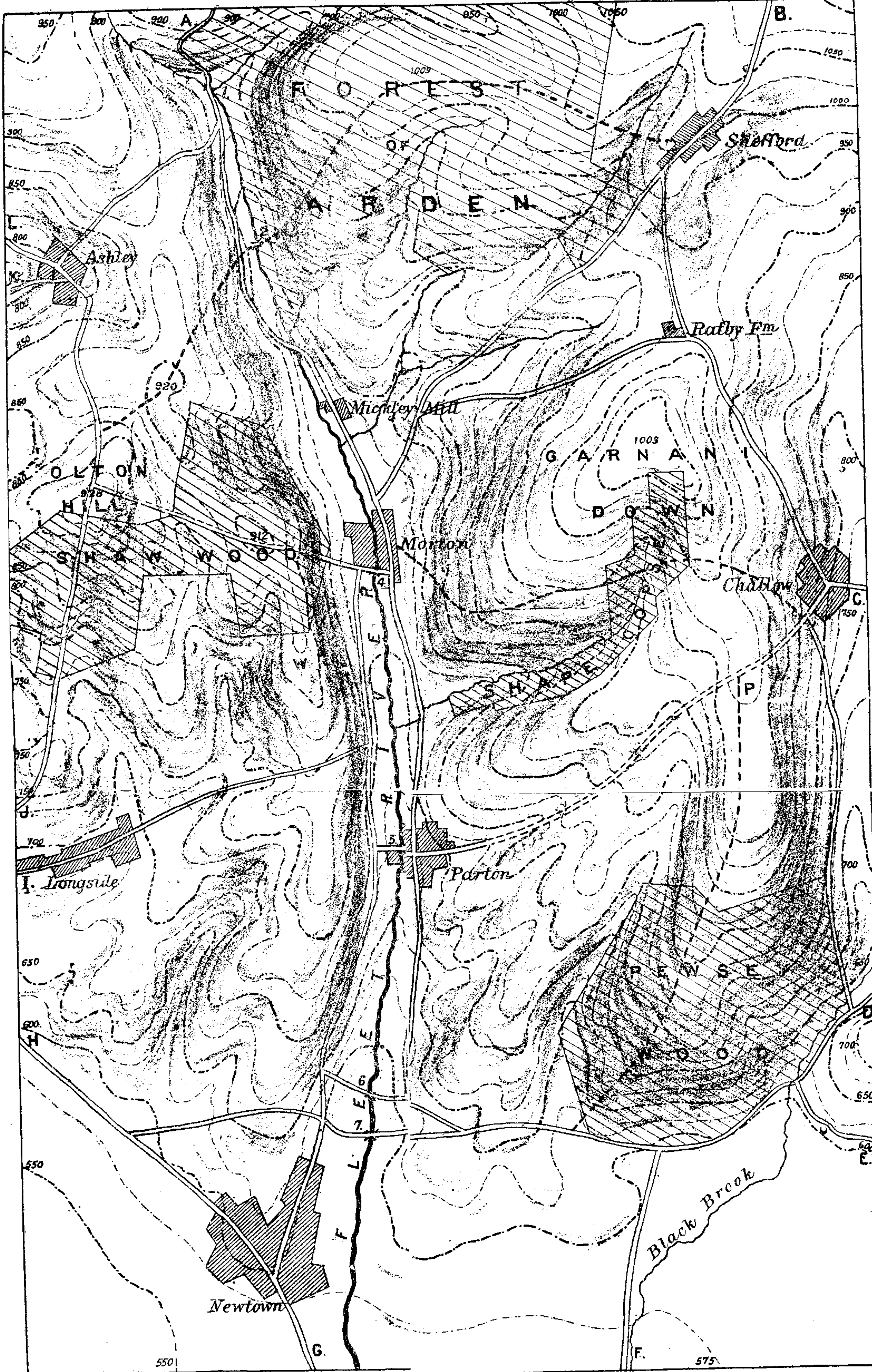
The action of the cavalry on the flanks aims at the capture of the enemy's artillery.

The co-operation of the three arms is here fairly well exemplified; the ground being favourable for the movement of all arms.

Example II. (Map B, Lieutenants' Promotion, May, 1893).—An enemy has occupied the ridges between Klenitz and Mzan, facing west; a brigade division of artillery (three field batteries), with half squadron of cavalry as escort, having reached Milowitz, is ordered to engage the enemy's artillery, which is posted north and south of Dub. Describe how the brigade division will move, and the arrangements to be made by each battery for occupying the position selected for it.

Answer. •

The brigade division in column of route by the direct road from Milowitz to Stracow on leaving the line of march at the cross-roads on north side of ridge marked 747 west of Cenow—Stracow, a short halt will be made in order to collect the batteries for a simultaneous advance. The commanding officer will ride forward, accompanied by his adjutant, and reconnoitre the position marked 747. If he takes range-takers, they should not follow him on to the actual positions, nor take ranges from the exact line which the batteries are to occupy, since their movements would attract the enemy's attention and reveal the intended position of the guns.



Scale, 3 inches to 1 mile,

Having determined the position, the commanding officer would send his adjutant to direct the advancing batteries, or may ride back for them himself, leaving his adjutant to observe the enemy. In either case the commanding officer should himself lead the final advance of the guns.

The formation adopted by the assembling batteries would in this case be brigade division quarter columns at full intervals, as the ground is open. Waggon will conform to the movements of their batteries, and follow them at 400 yards distance. Just before coming into action on hill 747 line at full interval will be formed, the line being led straight on to the intended position at a rapid pace.

The line should advance straight into position, and should not move to a flank, directly or obliquely under fire.

As the advance to the position is covered, and surprise is possible, the line will be halted immediately in rear of the position, in order to verify the actual places for the guns, and to elaborate the preparations for the simultaneous opening of fire. The batteries will be preceded by ground scouts.

The cavalry will rapidly search Stracow and Bor Wood (western portion) with reconnoitring patrols before the batteries are brought up, and combat patrols must remain in observation on the exposed flank whilst the batteries are in action. The remainder of the escort will be placed in rear of the Col, south of Stracow, to guard the exposed flank and support the look-out men in Bor Wood.

N.B.—This answer is in strict conformity with the Artillery Drill Book.

division and separate the batteries, although the temptation to do so is at first sight considerable.

Example III. (Map B, Lieutenants' Promotion, May, 1893).—Referring to Example II., the infantry have come up behind the ridge west of Cenow—Stracow, a battalion with a battery and 25 cavalry is ordered to *outflank* and attack the enemy's northern flank, which rests on the hill north of Dub. The attack is to be made simultaneously with an attack on the front of the enemy's position.

How will the commander carry out these instructions?

Answer.

As the attack is to *outflank* the enemy's northern flank there is apparently only one way of doing it,—viz., to move right round the wood north of Klenitz and attack from the direction of Ob: Cernutek. The cavalry would precede the infantry and artillery by a good mile, and ascertain whether Ob: Cernutek is occupied. They would also trot patrols down the roads leading south through the wood: these patrols should be cautioned not to show themselves on the south edge. The column would be preceded by an advanced guard consisting of one company, 400 yards in rear of advanced guard three companies, then the battery and left half battalion, followed by ammunition-carts and ambulance. A halt would be called at the north-east extremity of the wood. As soon as the cavalry have reported Ob: Cernutek to be unoccupied, the battery commander would ride forward and reconnoitre the position for his battery. Everything being arranged for the guns to come into action west of Ob: Cernutek, the battery would move forward and get into action, supported on the right flank by the advanced guard infantry, the cavalry reconnoitring towards Hnew-

cast corner of Ob: Cernutek, leaving one company as a reserve. The remaining six companies would attack in three lines across the Kosinsky Valley, supported by the fire of the artillery. In the event of the enemy withdrawing by the Sadowa—Lipa road, the battery would advance to Roskos Hill, and shell the Sadowa—Lipa road.

Example IV. (Map B).—Plan and issue orders for an attack on the village of Mzan from the direction of Dohalicka—Unt: Dahalitz. The force at your disposal is three battalions of infantry and a battery of artillery. The enemy has no artillery.

Answer.

The force would be distributed as follows:—

The battery would take up its position in rear of the cross road connecting the Unt: Dahalitz—Ob: Dahalitz and the Dohalicka—Ob: Dahalitz roads. Nos. I. and II. battalions at the Sugar Manufactory. No. III. battalion at Kopanina.

Nos. I. and II. battalions would be told off to assault. No. III. battalion to make a holding attack. The artillery would shell the south-east extremity of the village. The assault would be delivered obliquely, *viâ* the larger of the two copses. Each of the assaulting battalions would leave one company in reserve at the Sugar Manufactory. They would each attack on a front of about 80 yards, distributed in three lines—1st line two companies, 2nd line three companies, 3rd line two companies. The right battalion would be ordered to direct.

No. III. battalion would leave half a battalion in reserve at Kopanina, and throw four companies into the walled enclosures in front, from whence they would direct a continuous fire on the point of attack. The fall of the

houses of the village being out of view (but the exterior line of defence of the village would probably secure a field of fire on this side for the defenders), the oblique direction of the main attack would be carefully maintained for two reasons—

1st. To advance against the salient.

2nd. Not to mask the fire of the battery.

The signal for the assault would not be given until the fire of the artillery had produced a marked cessation of fire on the part of the defenders. The guns would support the attack till the last possible moment, advancing in echelon of half batteries should the defenders' fire slacken before the actual assault takes place, or if the defenders are entirely occupied with the infantry. When the fire of the battery is masked by the advancing infantry, it would be directed over their heads on to the village behind, or against any troops making a counter-attack.

Should the assault be successful, the reserves and the whole of No. III. battalion will be advanced. In the event of a repulse, No. III. battalion and the reserves will cover the retreat.

The signal for the assault to be delivered will be made known to the commanders of battalions.

Before leaving the points of assembly, the plan of action will be explained to the troops. They will also be told where to rally in the village, and that the most likely counter-attack will come round the south-west corner of the village, which will be either met or outflanked by the left battalion holding the enclosures, and also by the fire of the guns.

CHAPTER XV.

REAR-GUARDS.

THE ordinary rear-guard to a column advancing consists of a portion of infantry, with a detachment of cavalry or mounted police, which brings up the rear of every column of troops on the march. It is necessary for the protection of stragglers and authorised camp-followers, and to afford assistance to trains and baggage-guards in case of breakdowns.

The duties of rear-guards of this description are often very trying, and tax the patience and good temper of those employed, especially in bad weather, with bad roads and inferior transport.

There are two other classes of rear-guards: 1st, to a force retiring for strategical or other reasons, without having given battle; 2nd, to a force retreating after a defeat.

It is with the rear guard of a force retreating after a defeat—the rear guard *par excellence*—that tactics has to deal; but the principles on which a rear guard of this description is formed and handled, for protection of the main body, may be applied at discretion by commanders of rear guards of all descriptions.

At first sight it may appear strange that a rear-guard composed of a portion of a beaten force should be called upon to do what the whole detachment or army has failed to accomplish, viz., stop a hitherto victorious enemy. Experience, however, has shown it not only to be possible, but so generally feasible, that, unless an army remains fighting long enough to be routed

before it leaves the field of battle, it is an accepted maxim that a rear-guard of some sort ought to be extemporised, under cover of which, and of darkness, the greater portion of the beaten troops can get off the field and reorganise.

During the first moments of his final withdrawal from a field of battle, a commander looks to his cavalry and artillery to cover the retreat of his most severely handled battalions, while he organises a rear-guard composed of his least demoralised troops, usually taken from the general reserve.

A rear-guard action calls forth the highest qualities of a tactician under the most difficult and adverse circumstances, and at no time is the discipline of all arms more surely tested than when called upon to co-operate in covering the retreat of a beaten force.

It may here be remarked that, although the words "army" and "general" are most frequently employed throughout these chapters, on active service a knowledge of the principles of tactics is as essential to the commander of a battalion or a company as it is to a general commanding a division or an army.

It was during the conduct of a rear-guard in retreat that the Duke of Wellington, then commanding the 33rd Regiment, first distinguished himself in the Low Countries. On the 15th of September, 1794, "the French held the village of Baxtel, from which the Duke of York directed General Abercrombie, with two battalions of the Guards, four of the line, a battery of horse artillery, and a couple of squadrons of horse, to dislodge them. The English, though they attacked with gallantry, sustained a repulse, and, being closely pursued, would have been probably cut to pieces had not Colonel Wellesley, with exceeding promptness, deployed his battalion and checked the pursuers. The

village was not retaken; but his judicious move arrested the enemy, and the English were enabled to continue their retreat in good order and without heavy loss.*

It was a saying of Napoleon's, that "No man was a general until he had conducted a retreat."

One of the most gallant rear-guard actions in the annals of the British army was "El Bodon." On September 25th, 1811, a force composed of three battalions, the 5th, 77th (British), and 21st (Portuguese), five squadrons—two of the 11th Hussars and three of German Hussars—and two batteries of artillery, retreated for several miles in contact with a force nearly five times their strength, and covered the withdrawal from a difficult situation of three battalions, under Picton, operating on their right flank.

This action elicited the warm approval of the Duke of Wellington, expressed in terms extremely flattering to the regiments engaged, and the student is recommended to peruse the full account of it which is given in Napier's "Peninsular War," and quoted in Clery's "Minor Tactics."

The tactics adopted by the French General, Montbrun, would not be applicable to the present day, when a force of even 2,000 cavalry could not hope to attack repeatedly in the open three battalions of infantry and two batteries of artillery. Modern infantry armed with breech-loading magazine rifles, and using smokeless powder, can develop more than thirty times the amount of fire action that was possible in those days, and the assailants might now be exposed to it for a distance of a mile and a quarter, in place of 500 yards as in 1811. This fact has altered the relative strength of the two arms, when directly opposed to each other, to such an extent that even on open ground infantry may now confidently receive cavalry without forming squares.

* Gleig's "Life of the Duke of Wellington."

Rear guard *fights*, in which cavalry formerly took such a prominent part, will probably be less frequent in the campaigns of the future.

The Composition of Rear Guards

must depend entirely on the nature of the country, but a rear guard is usually composed of a force of all three arms, particularly cavalry, mounted infantry, and artillery with a portion of engineers. The cavalry and artillery will be used to check and delay the enemy by forcing his columns to deploy. Mounted troops can retire quickly, after delaying an enemy. Infantry is also necessary to defend bridges and defiles and to make a determined stand when required. Machine guns will be useful. The freshest and best troops should invariably be selected.

Order of March.

The whole of the mounted troops should cover the rear, artillery next, and lastly the infantry and machine guns nearest the main body.

Strength.

The strength of a rear-guard must depend on the tactical situation: it varies from one-fifth to one-third of the retreating force.

Rear-Guard Tactics.

The tactics of a rear-guard are essentially defensive; all the principles of modern defence are applicable to them, especially the use of hastily-constructed field-works. The mission of a rear-guard, like that of out-posts, is to retard rather than repel an enemy, to gain time rather than inflict loss. Any success can only be temporary, as the enemy's advanced-guard will shortly be reinforced by his main force.

The art of rear-guard fighting is—

1st. To occupy successive positions which directly cover the retreat of the columns in rear, and by taking every advantage of the natural strength of such positions, to oblige an enemy to reconnoitre, deploy, and to approach them with caution, in a word, to *delay him*.

2nd. To know when and how to withdraw without appearing to be hard pressed.

If the enemy's cavalry presses forward, a rear guard commander should withdraw his squadrons to the flanks, and, carefully masking his guns, endeavour to draw it on to his infantry, deployed and ready to receive it with volleys.

In the event of the enemy's cavalry being beaten off, the commander should not let his cavalry pursue, but rather open fire with his guns, bearing in mind that it has other far more important duties to perform than that of cutting up a few of the enemy's troopers.

The duty of the cavalry is to "watch the enemy, especially on the flanks, and report any turning movements, to delay the advance of the enemy and prevent his forcing the rear-guard to fight against its will, or overlooking its movements: to protect parties employed in carrying out the destruction of roads, bridges, &c.; if the main-guard halts, to take up a position under cover facing the enemy, so as to watch his movements, and charge him if necessary." *

The artillery of a rear-guard may sometimes engage that of the enemy, but directly his infantry appears, the guns must open fire on it at the longest effective ranges and compel it to deploy, and so gain time. A rear-guard commander may post a large proportion of his

* Cavalry Drill, 1896.

troops in the first line, and thus occupy a much more extended front than in the ordinary defence of a position, because his mission specially calls for the display of shifty tactics, and any trick which seems likely to deceive the pursuer as to the strength and intentions of the rear guard is allowable in its commander. As Lord Wolseley has said, the *game of brag* must continually be played by a rear guard commander.

Special circumstances may demand a prolonged resistance, such as the defence of the approaches to a mountain defile, a bridge, or a deep ford which the retreating army, hampered with its sick and wounded, and possibly delayed for want of sufficient transport, has not succeeded in passing.

On such occasions rear-guard tactics scarcely differ from those of ordinary defence, and under certain conditions a rear-guard may be directed to hold out to the last extremity, even until it is forced to surrender.

A rear-guard defending the entrance to a defile will occupy a position as far in rear of the main body as the configuration of the country, the condition of the roads, and the strength and proximity of the pursuers may justify.

At the entrance to the defile, if its flanks are accessible, the main column will have left a sufficient force of infantry and artillery to hold the flanks and command the approach, and so protect the retreat of the rear-guard and prevent the enemy from entering the defile with it. This affords a favourable opportunity to relieve the old rear-guard and allow it to rejoin the main column.

If the flanks of a defile are inaccessible, as in the case of very steep heights, the main body will not only leave a detachment in front of the entrance to cover

the retreat of the rear-guard, but will also construct successive barriers half way across the defile itself, to aid the rear-guard in retarding the pursuers. In this case, however, the chief defence will be *in rear of the defile*, and will be directed with a view to crush the head of the enemy's column as it issues from it.

Care must be taken to withdraw the rear-guard quickly through a mountain defile, or over a bridge or causeway, as the enemy is sure to press on briskly in the hope of issuing pell-mell with the defenders, and so nullifying the defence in its rear.

A bridge may be blown up, and a ford rendered impassable after crossing.

A causeway (a road over a morass) like a defile, with heights inaccessible, should be defended in rear on the side furthest from the enemy.

The withdrawal of troops left in front of any sort of defile is always a difficult and dangerous operation. The best plan, perhaps, is to dig across the entrance to a defile through which a force is withdrawing a deep and wide ditch, provided with a temporary bridge which, of course, must be destroyed as soon as the last of the rear-guard troops have passed over.

If the pursuit is slackening, a rear-guard commander should report the circumstance to the O. C. main body, but still keep touch with the enemy. If the pursuit stops altogether, touch must still be maintained, and, if necessary, a detachment left to watch the enemy's movements for some time longer.

A rear-guard retiring over the open should be withdrawn gradually. 1st. The infantry in *échelon*. 2nd. A portion of the guns. 3rd. The remainder of the artillery. 4th. The cavalry withdrawing slowly on the flanks.

The particular line of tactics adopted by a rear-guard must depend on the special circumstances in which it is

placed. If its own main body is close at hand, and much hampered with its trains, &c., more time must be allowed it to get away; under these circumstances the pursuit is likely to be vigorous, and a series of desperate and prolonged rear-guard actions may be imperative.

If the country generally is favourable for defensive tactics, no good opportunity should be lost for checking the pursuit, at bridges, defiles, villages, &c.; but a rear-guard action should never be unnecessarily prolonged.

Rear-Guard Positions.

The following considerations ought mainly to govern the selection of rear-guard positions:—

- I. A rear-guard position must cover the line of retreat.
- II. It should be one from which fire can be opened upon the enemy at long range.
- III. The means of retiring from it should be sufficient. Two or more lines of retreat are desirable, especially when a strong force of artillery is allotted to a rear guard.
- IV. Successive positions to fall back upon should be chosen with a view to covering by the fire of artillery the retreat of the other troops.
- V. The positions selected should be naturally protected on the flanks if possible, and not liable to be easily turned.

Example I. (Plate XXV.).—On the night of the 3rd November, 1896, you are in command of the following force, viz.:—

1st Infantry Brigade	} detached from the 1st Division—
200 Mounted Infantry	
One regiment Cavalry	
One Field Battery	

who are cantonned in and around Formby. At 4 a.m. on the 4th you receive the following order:—

“The troops under your command will form the rear guard of the Army Corps, and will cover the retirement across the River Dee at Stone Bridge of the remainder of the 1st and of the whole of the 2nd two divisions, which are still to the north of that river. You will delay the enemy as much as possible, and will eventually take up a position to the north of Stone Bridge, in order to deny that passage to the enemy.

“Two battalions and a battery of field artillery will be left at the forked roads north of Bell’s Farm, to reinforce you, if necessary, on your arrival at the position covering Stone Bridge.

“The enemy’s advanced cavalry are known to be six miles north of Formby, but it is believed that his infantry cannot come into action before noon. Describe, with the aid of the map, the general plan which you would adopt to deny the passage to the enemy.”

Answer.

General Idea.

To cover the retirement of the Army Corps over the River Dee, delaying the enemy as much as possible, and eventually take up a position to cover Stone Bridge.

Examination of Ground.

(i.) The front to be covered is about three miles, time is available for throwing up entrenchments, and creating obstacles, as the enemy’s infantry will not be up for about eight hours.

(ii.) The position marked X. W. B. commands the approaches from the north, east, and west. There are

good positions to fall back on, within artillery supporting range of each other—viz., Ighton, Hill 583, and Polt Wood, and subsequently Hill 575, forked roads, north of Bell's Farm, Hill 590, New Copse.

(iii.) Ample means of retreat.

(iv.) The front is too extended to permit of a prolonged resistance, but otherwise the positions are very defensible.

Proposed Scheme.

First.—To prevent the enemy's advanced cavalry from reconnoitring, especially round the flanks.

Second.—To oppose him along the line X.W.B.

Third.—To fall back on the position Ighton, Hill 583, Polt Wood.

Fourth.—To take up a position to cover Stone Bridge, with the assistance, if needed, of the two battalions and battery of artillery left at Bell's Farm.

Orders.

One squadron to each of the roads G and B, supported respectively by 50 mounted infantry; with instructions to endeavour to prevent the enemy's cavalry from reconnoitring, and report his movements to me at Formby.

Half a squadron to push up the A road, and fall back slowly before the enemy if he is in superior force, and draw him under the fire of the infantry at Formby.

Half a squadron to escort the guns at W. One squadron in reserve in rear of Formby. This squadron to furnish orderlies, &c.

The commander of the cavalry to remain with me.

100 mounted infantry with two machine-guns to hold knoll X.

Artillery first position, W; second position, Hill 583.

No. I. Battalion Infantry. Four companies, with two

machine-guns, to hold Formby. Four companies in reserve behind village.

First Position.

No. II. Battalion outer edge Polt Wood. Six companies in firing line, two in support.

No. I. Battalion when withdrawn from Formby to entrench on north-east slope of Hill 583, with four companies west of the Formby Road. Four companies in reserve.

No. III. Battalion to entrench along the north-western slope of Hill 583.

No. IV. Battalion in reserve at Ighton. Mounted infantry and two machine-guns, when withdrawn from X, to hold the ravine and road G.

Half squadron from road A and half squadron at W (escort to the guns), when withdrawn to reinforce the squadron on the right flank. Squadron and mounted infantry to remain in observation until driven in.

Machine-guns from Formby to hold east and north corner of Polt Wood.

Artillery when withdrawn from W, to take up its second position Hill 583.

Work.

The front of all positions obstructed. Roads barricaded, Formby placed in a state of defence. Both bridges at Formby prepared for destruction. Epaulement on Hill 583. Outer edge of Polt Wood entangled where occupied, roads barricaded.

Infantry to entrench where the convexity of the slopes obliges the firing line to be advanced over crest line of slopes.

Final Position.

Hill 575 north-west of Bell's Farm, Hill 590, New Copse.

Reinforcement at Bell's Farm sent to right flank artillery, one battery, east of New Copse, one battalion to hold New Copse, one battalion in second line in rear of New Copse entrenched.

Original Force.—No. II. Battalion, four companies east slope of Hill 590, four companies in second line, battery at P. No. I. Battalion, six companies entrenched on Hill 590, two companies in second line. No. III. Battalion, Hill 575, six companies entrenched, two companies at Bell's Farm. No. IV. Battalion in reserve at forked roads north of Stone Bridge.

Machine-guns: two in New Copse and two at forked roads north of Bell's Farm.

Brigade Reserve Ammunition.

First Position, Warling Park.

Final Position, forked roads north of Stone Bridge.

Example II. (Question 7, Competitive Examination for Militia Subalterns for Commissions in the Army, March, 1890).

A rear guard covering the retreat of a division proceeding northwards is ordered to make a stand at a river valley which crosses the road of retreat.

The river, flowing westwards, is crossed by a bridge on the main road, and by others half-a-mile above and below, while half-a-mile lower still is a ford.

The slopes of the valley are open and gentle, that on the south side extending for three-quarters of a mile, the northern slope half-a-mile; each slope is crowned by a wooded belt commanding a clear view of the country to the south of it; beyond the valley to the north, the country is enclosed; a few buildings exist near the bridge on main road.

Explain how you would manœuvre the rear guard with a view to retard the enemy in this neighbourhood.

Draw a rough sketch of the country, indicating on it the positions you assign to the various fractions of the rear guard, giving full reasons.

Answer.

Detail of Rear Guard.

One Regiment Cavalry.

Two Companies Mounted Infantry

Two Batteries Field Artillery.

Two Battalions Infantry.

Two Machine Guns.

Half Company Royal Engineers.

The object of a rear guard is to delay the enemy and force him to deploy, then fall back to another position, there to repeat the same tactics.

N.B.—Telegraphic communication should, if possible, be maintained with the main body by the centre road. This duty would be entrusted to the engineers detailed from the main body.

The four principal requirements of a good rear guard position,—viz.:

- I. That it should block the road to the pursuers;
- II. That it should admit of long-range fire being brought to bear on the avenues of approach;
- III. Ample means of retreat:
- IV. Good position, within supporting distance, to fall back on;

are all found on the sketch (Plate XXVI.) which represents the ground described.

Scheme, *vide* Sketch.

For the defence of the first position, marked A—A, all the available infantry is placed in the first line, making

The engineers, two companies of infantry, one from each battalion, and two half companies of mounted infantry being sent back to prepare the three bridges for destruction, and to reconnoitre the ford. A troop of cavalry from each flank would also be sent back to patrol the river east and west, from the right bank, so as to avoid all chance of being cut off. The two machine guns would be sent back with the mounted infantry.

Half a battery of artillery and half of No. I. battalion would be sent back to hold the right flank of the second position, B—B. The presence of the ford makes this the weak flank, and it may be assumed that the enemy, finding the bridges blown up, would endeavour to get round by the ford.

The second position, B—B, is held by the whole force, after it has withdrawn over the river, including the detachments told off to destroy the bridges. The cavalry and mounted infantry would render the ford as impassable as time and means admit.

The company of infantry and engineers at the centre bridge would hold the houses until the troops retiring by the centre road have all passed over the bridge. If the wind should be blowing towards the enemy the houses, when abandoned, might be set on fire.

As the country to the north of the second position is enclosed, the subsequent movements of the rear guard would be confined to the roads.

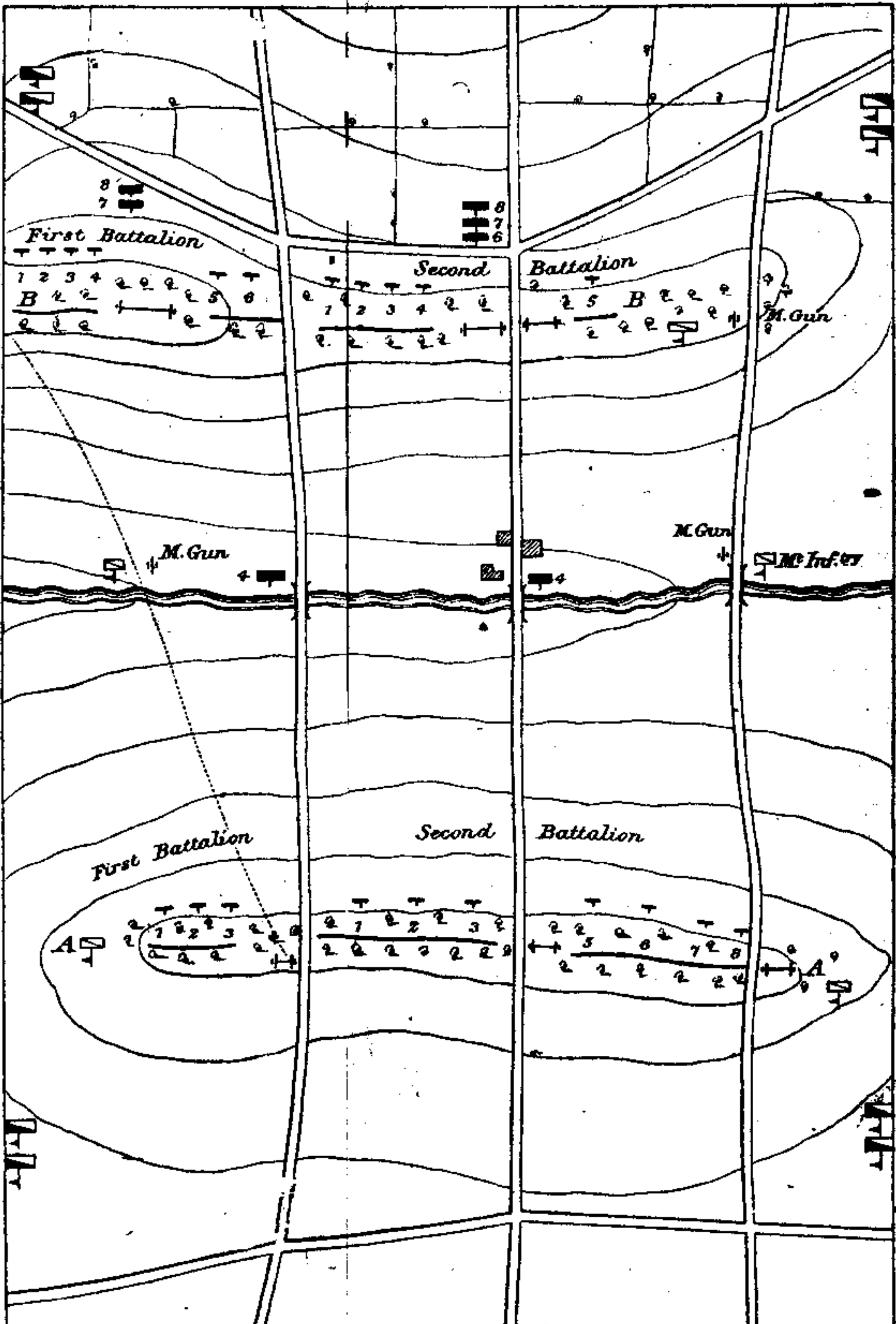
The retirement from the second position would be by the three roads in the following order:—

East Flank Road.

One Squadron Cavalry.

Half Battery Artillery.

Detachment Royal Engineers.



Scale about 2 inches to 7 miles. Contours about 30 feet V.I.

ROUGH SKETCH

Two Companies No. II. Battalion.
Half Company Mounted Infantry.
One Machine Gun.
One Troop Cavalry.

Centre Road.

Two Companies No II. Battalion.
One Battery Artillery.
Detachment Royal Engineers.
Four Companies No. II. Battalion.
Half Company Mounted Infantry,
One Troop Cavalry.

West Flank Road.

Two Squadrons Cavalry.
Half Battery Artillery.
Detachment Royal Engineers.
No. I. Battalion.
One Company Mounted Infantry.
One Machine Gun.
Two Troops Cavalry.

The detachment on the west flank road is strong, as this is assumed to be the exposed flank.

Telegraphic or other connection, by means of cyclists or mounted orderlies, would be maintained by the main body with the commander of the rear guard.

Lateral communications between the different detachments of the rear guard would be kept up by the cavalry.

The staff-officers of the main body when selecting places for the rear guard to make a stand should endeavour to secure free communication between the three detachments.

CHAPTER XVI.

RIVERS.

RIVERS are considered very formidable obstacles: nevertheless, it is generally recognised that a river line of defence is not a desirable one.

A long line of defence, such as a mountain range or a river, can only be watched by posting isolated bodies of troops at different places throughout its whole extent. This, of course, means dissemination, while to oppose the enemy at the point he selects for crossing, you need a concentration of all your forces. Unless, therefore, the line to be defended is limited in extent in proportion to the numbers available for defending it, a river line is an extremely vulnerable barrier.

Even the Danube, of which the main stream from Widdin to Silistria, a distance of 250 miles, averages about 1,000 yards in width, having numerous fortresses, and command of the northern bank throughout the entire distance, failed to stop the Russian invasion in 1877.

The Turkish resistance was certainly not energetic; still, opinions are divided as to whether a more prolonged *passive* resistance would have materially aided them in repelling the invasion.

Some of the great rivers of the world—for instance, the Indus or the Jumna—for six months in every year are impassable, except by means of boats. The magnificent bridges across these mighty rivers rank amongst the greatest engineering triumphs of the age. They take years to build, and are quite beyond the scope of all operations of war.

To attempt to convey an army over a raging torrent from three to four miles broad, in open boats, or even river steamers, would be an operation, apart from its difficulty, certain to attract so much attention that even the most apathetic defenders could oppose the crossing in force, wherever it was attempted. During the melting of the snows the Indian rivers may be said to be impassable barriers to an army hampered with the requirements of modern war. As the hot weather would be a very unsuitable season for campaigning, these rivers need only be contemplated in a military sense (so far as invaders are concerned) when confined to their natural beds, and not when overflowing their banks for miles on either side.

They constitute our chief natural safeguard against any successful invasion of India from the north and north-west.

The rivers we have principally to consider are those of Europe, and of these the Danube, notably one of the most formidable, has never yet stopped an invasion.

The Defence.

There are two methods of opposing an invader's crossing. First, by offering an active resistance; secondly, a passive resistance.

When the defenders hold one or more bridges, and occupy various positions along their own bank, with the power of concentrating at intermediate points, they are said to offer an active resistance to the passage of the river.

This method, in addition to opposing the invaders more or less vigorously along the line, gives to the defenders the power of issuing over the river on the assailants' side, and delivering counter-attacks. It

entails great dissemination even more than passive resistance, and the troops pushed over on the enemy's side are liable to be beaten and forced to surrender, or to retreat over their own bridge in contact with the invaders, who would thus gain their object without the trouble of constructing a bridge for themselves.

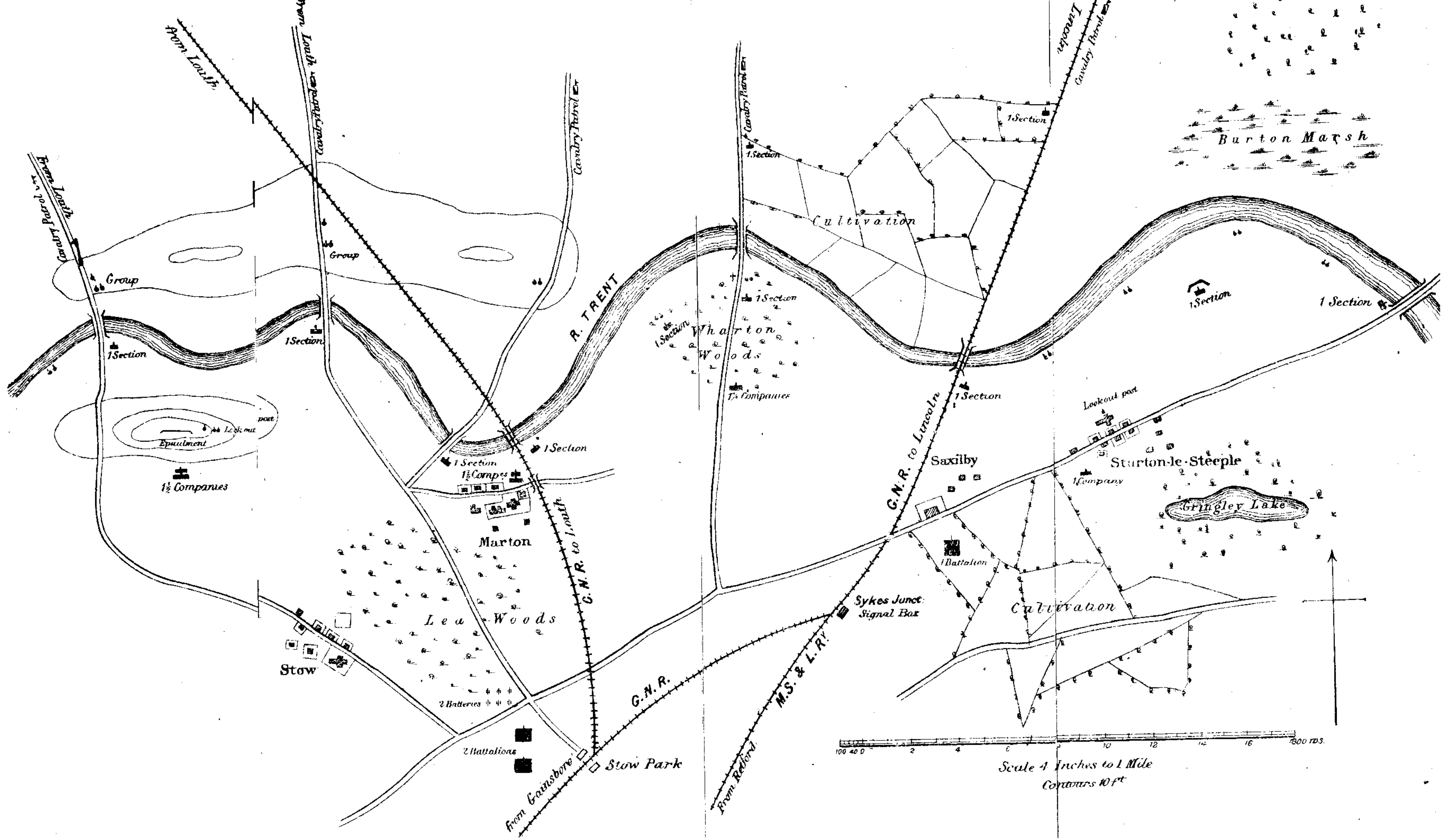
The success of this mode of defending a river will chiefly depend on the handling and posting of the different detachments, and their power of speedy concentration, which must, however, depend on the extent of front to be guarded.

The passive defence of a river is when the defenders keep their own side (with the exception of scouts pushed over), and watch the easy crossing-places, holding the bulk of their forces in rear, and in readiness to march wherever the enemy attempts to land a covering party.

Both methods are more or less unsatisfactory, and, unless the river is broad and short, rarely succeed in their object.

The enemy is certain to conceal his real intentions, and whenever he attempts to cross, will do so at several points simultaneously. Once the enemy has gained a footing for the infantry forming his covering party, the passage is more than half lost, for the defenders will probably be engaged at two or more places simultaneously, and should the assailants succeed in effecting a crossing at even one out of three or more places attempted, the isolated detachments of the defenders can be attacked in detail.

Plate XXVII. illustrates a force composed of a squadron of cavalry, a brigade of infantry, and two batteries of artillery disposed for the defence of about four miles of a river.



There is another way in which a river line can be utilised by the defenders. It is to watch the points of passage with scouts, and keep the main army in rear of the river, between the assailants, after they have crossed it, and their objective.

If the scouts report that the enemy are about to cross at a certain point within reach, *i.e.*, if his real intentions are made clear, the defenders from their central position may be able to bear down upon him and strike a sudden and decisive blow, before all his troops have crossed: failing this, the defenders should select a naturally strong position, which the enemy, supposing him to have surprised the passage, will not dare to pass unheeded, lest he expose his flank and communications.

In this case the assailants would be forced to attack a carefully-chosen and strongly-entrenched position, with their backs to a defile, and with probably only one line of retreat available.

Plevna (*vide* Plate XXVIII.) affords an excellent example of the value of a strategical position in rear of a river. In 1877 the Russians, after they had forced the passage of the Danube at Zimnitza-Sistova, were brought to a complete standstill by Osman Pasha, who had occupied Plevna, a position from which he threatened their right flank if they advanced, and also their communications.

The Attack.

The first thing to be done is to reconnoitre the banks carefully, and push scouts over on the enemy's side to discover his dispositions. In order to do this thoroughly the assailants' own side must first be cleared of the defenders' scouts.

Meanwhile the troops should be concentrated at two or more points within a day's forced march of the river, and the most careful preparations made to prevent any hitch occurring at the last moment. With this object boats should be procured, rafts constructed, pontoons collected, and the bridges even put together, if time permits, to ascertain that they are of the required length. The actual crossing-place, or places, will be finally fixed upon by the Commander-in-Chief, in accordance with the reports he may receive from his engineer and staff officers selected to reconnoitre.

It is seldom that an army can hope to effect a crossing exactly at the most desirable spot, as the enemy may be expected to have taken measures to frustrate it; for this reason what are called *secondary crossing places* are most essential, and the preparations for these secondary crossings should, if necessary, be as carefully planned as the principal one. If energetically commanded, the defenders will probably be in force to oppose all the most likely crossings.

Though it cannot be expected that all the requirements of a good crossing place will be obtainable, they may be briefly enumerated as follows:—

1. Suitable cover on the enemy's side for the landing and establishment of a covering party of infantry, and to deflade the bridge.
2. Command of bank, and suitable ground for guns to be got into position, to protect the crossing of the covering party, and subsequently the bridge, during its construction.
3. A bend of river towards the assailants, to enable them to direct a convergent fire on the opposite side.

4. An island, or islands.
5. A tributary stream.
6. Good sound ground suitable for embarkation, and disembarkation, and room to deploy after crossing.
7. Cover on the assailants' side, to conceal the movements and concentration of troops within easy reach of the river.

The preliminary operations to forcing the passage of a river consist of—

- (i.) Driving the enemy's scouts from the near bank.
- (ii.) Masking any bridge heads the enemy hold in the vicinity of the intended crossing-place, and thus preventing counter-attacks.
- (iii.) Collecting materials and bringing them up.
- (iv.) Assembling the covering party.
- (v.) Making feint attacks to draw the enemy's attention from the actual crossing-place.
- (vi.) Selecting the artillery positions.

All preparations completed as regards material, the first thing to be accomplished is the landing and establishment of a suitable covering party of infantry, under cover of which, and of the artillery, the bridges are constructed.

We read in ancient history that the swimming and fording of rivers were among the regular exercises of the Roman legionary. "Though immersed up to his chin in water, he was an expert in plying his hatchet against the stakes which opposed his passage, while he held his buckler over his head not less steadily than on dry land. Behind him a constant storm of stones and darts was impelled against the enemy from the engines which always accompanied the Roman armies." The enemy driven from their position, Cæsar established his covering party, and commenced his bridge.

In the absence of boats, or other means of crossing, in these days, as of old, covering parties may be forced to swim, although the swimming of rivers is not amongst the regular exercises of the army. Substitute guns for engines, and the principles of tactics for the passage of a river are still those which governed Cæsar.

After a covering party has once established itself, and driven off the enemy, the bridge is commenced from both ends, and pushed on incessantly until completed. Meanwhile, infantry in sufficient numbers should be got across to protect the flanks and front of the covering party, and the moment the bridge is completed, the artillery, cavalry, and various trains should be moved rapidly across.

The Passage of the Leck, in 1631.

The crossing of the River Leck, by Gustavus Adolphus, April, 1631, in the presence of 22,000 troops under the veteran commander, Tilly, furnishes a rare example of this most hazardous operation, and also a proof of the consummate knowledge of tactics possessed by the King of Sweden. It is thus described by Defoe, in his "Memoirs of a Cavalier":—

"Tilly, joined by the Duke of Bavaria, had about 22,000 men distributed along the Bavarian bank of the River Leck, and occupied all the convenient places on the river to dispute the King of Sweden's passage.

"The King, informed of Tilly's dispositions, resolved to go and view the disposition of his troops, and setting out with an escort of horse, gained a height from whence he could see the course of the river for several miles. Turning to the north he observed a bend of the river towards his own side, and at once said, 'There's a

point will do our business, and if the ground be good, I'll pass there ; let Tilly do his worst.'

"He immediately directed a small party of horse to bring him word how high the bank was at the bend ; 'and he shall have fifty dollars,' says the King, 'that will bring me word how deep the water is.'

"A sergeant of dragoons obtained leave to go disguised as a boor, and taking with him a long pole, went boldly to the bank of the river, and calling to the sentinels which Tilly had placed on the other bank, asked them if they could help him over the river, and pretended he wanted to come to them. At last, being come to the point where the bend was, he stands parleying with them a great while, and pretends to wade over, thrusting his pole in before him, till, being gotten up to his middle, he could reach beyond him, where it was too deep. 'Why, you fool,' says one of the sentinels, 'the channel of the river is 20 feet deep.' 'How do you know ?' says the dragoon. 'Why, our engineer says he measured it yesterday.'

"This is what he wanted ; but, not yet fully satisfied, "Ay ! but,' says he, 'may be it may not be very broad, and if one of you would wade in to meet me till I could reach you with my pole, I'd give him half a ducat to pull me over.'

"One of the soldiers immediately strips, and goes in up to the shoulders, and our dragoon goes in on his side. The stream takes the other soldier away, and he, being a good swimmer, came over to the dragoon's side.

"After some conversation, the dragoon pretended to be sorry he could not get over the river, and makes off, the Bavarian returning to his comrades on his own side.

“The King having examined the dragoon, understood from him that the ground on his side was higher than the enemy by 10 or 12 feet, and a hard gravel. Hereupon the King resolved to pass there, and himself gives particular directions for a bridge.

“His bridge was only loose planks laid upon large trestles; the trestles were made higher than one another to answer to the river as it became deeper or shallower, and was all framed and fitted before any appearance was made of attempting to pass. When all was ready the King brings his army down to the bank of the river, and plants his cannon, as the enemy had done, some here and some there, to amuse them.

“At night, on the 4th of April, the King commanded 2,000 men to march to the bend and throw up a trench on either side, and quite round it, with a battery of six pieces of cannon on each end, besides three small mounts, one at the point and one at each side of the bend, which had each of them two pieces upon them.

“This work was begun so briskly, and so well carried on, the King firing all night from the other parts of the river, that by daylight all the batteries at the new works were mounted, the trench lined with 2,000 musketeers, and all the utensils of the bridge lay ready to be put together.

“Now the Imperialists discovered the design, but it was too late to hinder it. The musketeers in the great trench and the five new batteries made such continual fire, that the other bank which, as said before, lay 12 feet below them, was too hot for the Imperialists; whereupon Tilly, to be provided for the King at his coming over, falls to work in a wood right against the point, and raises a great battery for twenty pieces of cannon, with a breastwork or line as near the river as he could to cover his men, thinking that when the King

had built his bridge, he might easily beat it down with his cannon. But the King had doubly prevented him, first by laying his bridge so low that none of Tilly's shot could hurt it; for the bridge lay not above half a foot above the water's edge, by which means the King, who had showed himself an excellent engineer, had secured it from any batteries to be made within the land, and the angle of the bank secured it from the remoter batteries on the other side, and the continual fire of the cannon and small shot beat the Imperialists from their station just against it, they having no works to cover them. In the second place, to secure his passage, the King sent over 200 men, and after that 200 more, to cast up a ravelin on the other bank, just where he designed to land his bridge. This was done with such expedition that it was done before night, and in condition to receive all the shot of Tilly's great battery, and effectually covered his bridge.

"While this was doing, the King, on his side, lays over his bridge. Both sides wrought hard all day and all night, as if the spade, not the sword, had been to decide the controversy, and that he had gotten the victory who's trenches were first ready. In the meanwhile cannon and musket-bullets flew, and both sides had enough to do to make their men stand to their work. The King, in the hottest of it, animated his men by his presence, and Tilly, to give him his due, did the same. The execution was so great that many officers on both sides were killed and wounded. Tilly was obliged to expose himself.

"And here, about one o'clock, much about the time that the King's bridge and works were finished, and just as Tilly had ordered his men to fall upon our ravelin with 3,000 foot, was the brave old Tilly slain with a musket-bullet in the thigh. He was carried off

to Ingolstat, and lived some days afterwards; but died of that wound the same day as the King had his horse shot under him at the siege of that town.

“We made no question of passing the river here, having brought everything so forward, and with such extraordinary success; but we should have found it a very hot piece of work had Tilly lived one day more; and, if I may give my opinion of it, having seen Tilly’s battery and breastwork, in the face of which we must have passed the river, I must say that whenever we had marched, if Tilly had fallen in with his horse and foot placed in that trench, the whole army would have passed as much danger as in the face of a strong town in the storming a counterscarp. The King himself, when he saw with what judgment Tilly had prepared his works, and what danger he must have run, would often say that day’s success was every way equal to the victory of Leipsic.

“Tilly being hurt and carried off, as if the soul of the army had been lost, they began to draw off. They drew off by degrees, sending their cannon and baggage away first, and leaving some to continue firing on the bank of the river to conceal their retreat.

“The river preventing any intelligence, we knew nothing of the disaster befallen them; and the King who looked for blows, having finished his bridge and ravelin, ordered to run a line of palisadoes, to take in more ground on the bank of the river, to cover the first troops he should send over. This being finished the same night, the King sends over a party of his guards to relieve the men who were in the ravelin, and commanded 600 musketeers to man the new line of the Scots brigade.

“Early the next morning a small party were sent out to learn something of the enemy, commanded by

Captain Forbes, of my Lord Reay's regiment, the King observing they had not fired all night; and while this party were abroad the army stood in battalia, and Sir John Hepburn, whom, of all men, the King most depended upon for any desperate service, was ordered to pass the bridge with his brigade, and draw up without the line, with command to advance as he found the horse, who were to second him, came over.

"Sir John being passed, meets Captain Forbes, and the news of the enemy's retreat. He sends him directly to the King, who was by this time at the head of his army, in full battalia, ready to follow his van-guard, expecting a hot day's work of it. Sir John entreated the King to give him orders to advance, but the King would not suffer him, for he was ever upon his guard, and would not venture a surprise. So the army continued on this side of the Leck all day and the next night.

"In the morning the King ordered out 900 horse and 800 dragoons, and ordered us to enter the wood by three different ways, but so as to be able to support one another, and then ordered Sir John Hepburn with his brigade to advance to the edge of the wood to secure our retreat; and, at the same time, commanded another brigade of foot to pass the bridge, if need were, to second Sir John Hepburn, so warily did this prudent general proceed."

The Passage of the Danube, in 1877.

The passage of the Danube by the Russians, in 1877 affords a striking example of how a formidable river should be crossed (*Vide* Plate XXIX.).

By the end of May the Russians had concentrated four corps at a central point in the vicinity of Bucharest.

with one corps at Slatina; but their preparations for crossing the river were, from various causes, delayed until the 26th June (*vide* Map, Plate XXVIII.).

Meanwhile the Turks occupied the fortresses of Nikopolis, Rustchuck, and Silistria, and collected some troops at Turtukai. They also had standing camps of observation at Sistova, Parapan, and other places along the southern bank of the Danube, which commands very considerably the northern, or Roumanian, side throughout.

The Russians had brought up their pontoon-trains, and had also collected a considerable number of boats. Between the 20th and 24th of June the various corps in the neighbourhood of Bucharest had moved down, and were concentrated between Beia and Saltcha, a position threatening Rustchuck, Sistova, and Nikopolis, and leaving the Turks in ignorance as to their real intentions.

After the completion of a final and personal reconnaissance on the 24th June, the Grand Duke Nicholas decided to cross at Zimnitza-Sistova, and on the same day he gave orders for the siege-batteries in position before Rustchuck and Nikopolis to begin the bombardment of those two fortresses, and issued secret orders that Zimnitza-Sistova was to be the actual spot where a crossing was to be attempted, directing the IXth Corps at Slatina to co-operate by making a feint at crossing at Nikopolis.

A Division of the 8th Corps, with some light guns, and the whole of the pontoon trains and boats was told off to form the covering party.

This division, composed of 15,000 infantry under General Dragomiroff, arrived at Zimnitza on the afternoon of the 26th of June, and, as soon as it was dark, launched their pontoons and boats on the stream at Zimnitza. Meanwhile, during the launching of the

boats five batteries were placed in position on the north bank, to the east of an island, behind which was the point of embarkation; these guns were directed to cover the passage of the covering party of infantry destined to land at the mouth of a small stream on the Turkish side, opposite to where the Russian batteries were in position.

Between Nikopolis and Rustchuck the foot-hills of the Balkan range of mountains stretch down to the Danube, and the southern bank of the river commands the northern by several hundred feet. Under these circumstances the landing-place was well chosen.

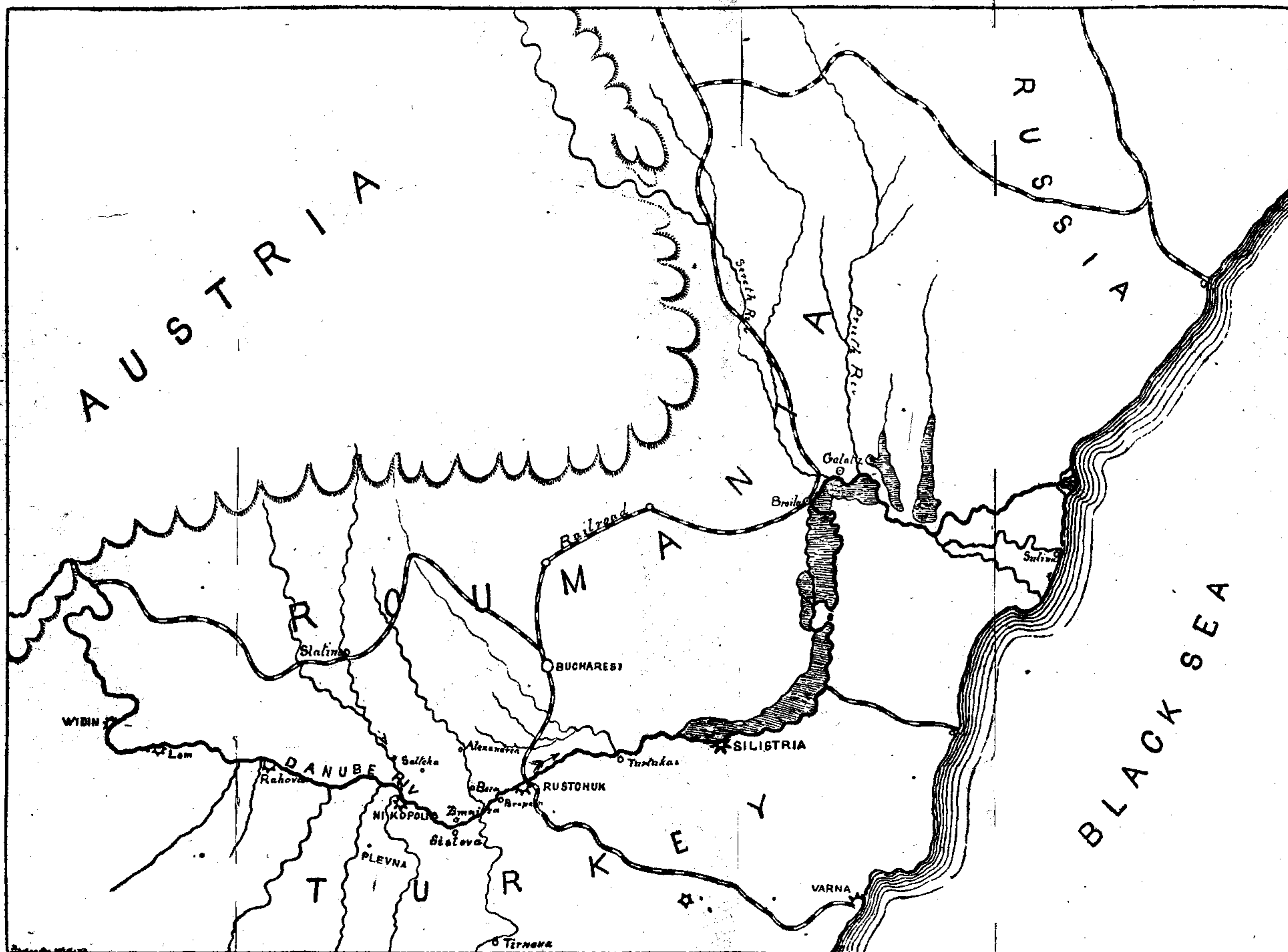
The first detachment, 2,500 men, started to row over at 1 a.m. on the morning of the 27th of June, and landed at the mouth of the above mentioned stream. The Turkish outposts discovered them just as they reached the shore, but too late to prevent their landing. The Turks had in the immediate vicinity two camps, computed at about 5,000 men each, and from the most easterly of these camps they advanced to oppose the covering party, when some severe fighting ensued.

The Russians being steadily reinforced by fresh boatloads of their comrades advanced slowly up the stream, and by 8 o'clock a.m. secured some heights on its right bank or east side, which protected them from the Turks on that side. Meanwhile, General Dragomiroff was collecting the remainder of his division as it got over, and by 11 a.m. he had about 10,000 men on the west bank of the stream, and ordered a general advance against the Turkish troops occupying the heights directly facing the island, while the troops who had first landed held the ground they had captured, and protected Dragomiroff's left flank during his advance, which was also covered by the fire of the guns in position on the north side of the river.

The result was that the Turks were divided and retreated in a south-easterly direction to Tirnova. By 3 o'clock the Russians had established themselves on the heights held by the Turks in the morning. The Russians lost 800 men and 31 officers killed and wounded, of whom the greater portion belonged to the regiment which landed first, and fought its way up the little stream in the morning. By dark the same evening the 2nd Division of the 8th Corps had been ferried across the stream, making in all about 25,000 infantry, under General Radetzy, and the passage was secured. Next day the bridge was commenced, which was completed on the 2nd of July, when the army at once marched over.

In this crossing many of the most important principles of river tactics were triumphantly demonstrated.

1. The collection of pontoons for bridging the stream.
2. Concentration of troops at a strategical point equidistant from several likely crossing-places.
3. Secrecy, up to the last moment, as to the actual place of crossing.
4. Careful reconnaissances.
5. Selection of point possessing the following tactical advantages, viz., a tributary stream (which was utilized for conveying the pontoons and boats down to the point of embarkation), and the presence of two islands, which covered the movements of the invaders for a considerable portion of their passage, and lessened the labour of constructing the bridge.




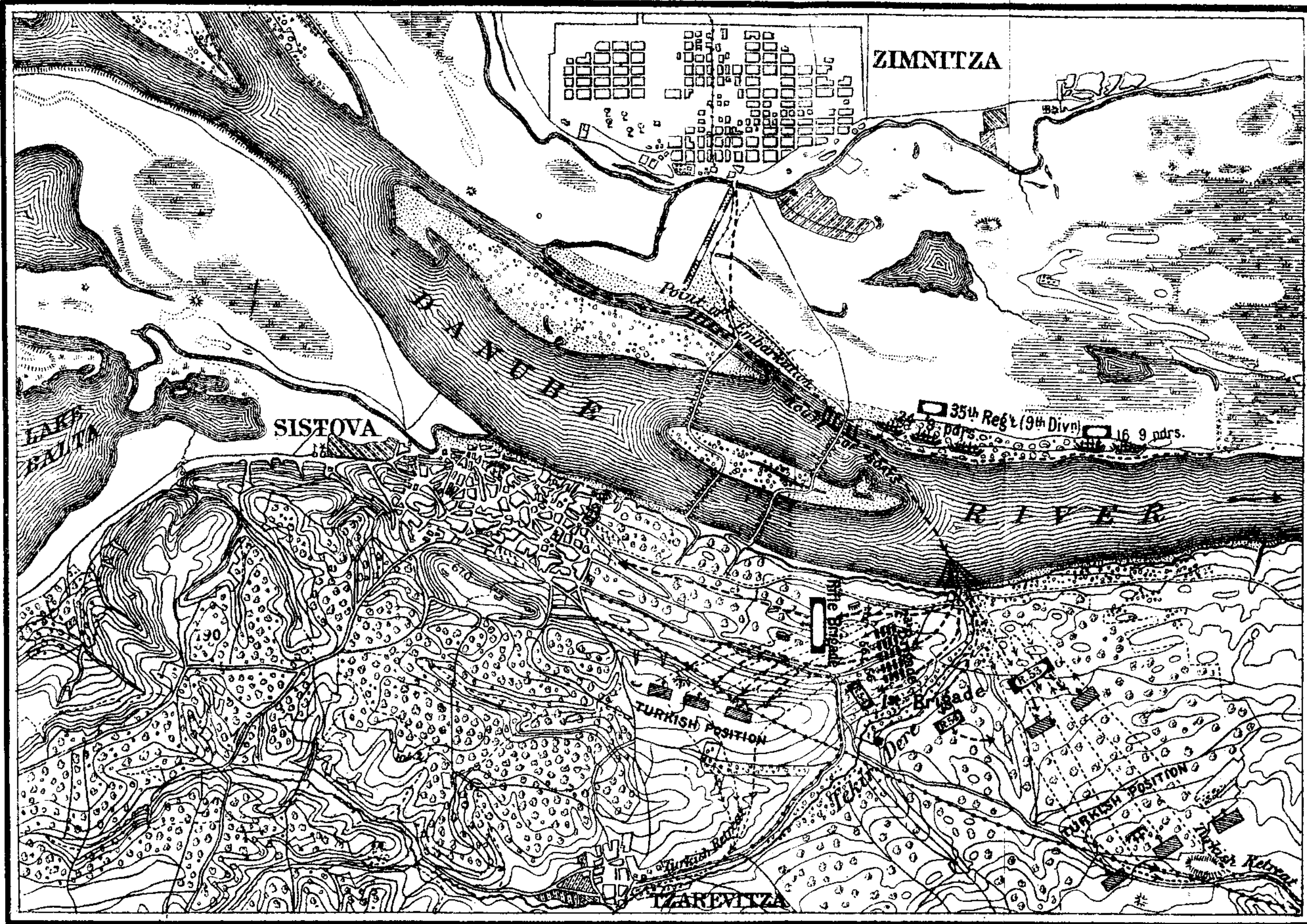
MAP OF THE DANUBE.

THE CROSSING AT ZIMNITZA-SISTOVA

Russian Troops 

Scale $\frac{1}{25,000}$

June 27th 1877. Turkish Troops  Plate XXIX.



Contour Lines at 70 ft. vertical interval.
The positions shown are those of about 11 A.M.

6. The selection of a favourable point to land at, in spite of the natural difficulties of the situation, owing to the entire command of the banks, being on the Turkish side.

7. Feint attacks on Nikopolis and Rustchuck.

The arrangements for the embarkation of the covering troops, and for the co-operation of the batteries placed in position on the assailants' side of the river, were all very complete, and apparently everything was timed in such a manner as to ensure success.

Although the Turks did not offer a desperate resistance, still the loss incurred by the regiment which was the first to land was very severe in proportion to the number of men engaged (2,500), and at one time the opposition it encountered must have been considerable.

The two tactical requirements not fulfilled at the place chosen for this crossing were, a salient bend towards the assailants and commanding positions for the artillery; the latter was not procurable as the right bank of the Danube commands the left between Nikopolis and Silistria. A study of the passage of the Limat by Massena in 1799, an illustrated example of which is given by Brigadier General Clery in "Minor Tactics," will bring these two points before the student. The passage of the Douro by Sir Arthur Wellesley in 1809 is another very instructive example of forcing the passage of a river furnished by the same author.

CHAPTER XVII.

DEFILES.

A DEFILE, in a military sense, is a passage which can only be traversed by a force on a tactically restricted front, in proportion to its strength. Hence, defiles of all descriptions cause delay, and are dangerous obstacles when within striking distance of an enemy.

On the other hand, defiles, when in the possession of the defenders, often enable an inferior force to bar the way to a much stronger one, and the famous line—in yon straight path a thousand might well be stopped by three—may, under certain circumstances, still be applicable. Defiles are described as long or short; their flanks as accessible or inaccessible. A long defile with inaccessible flanks, if scientifically defended, even by a numerically inferior force, may be looked upon as an almost impassable obstacle. A causeway of considerable length, or a gorge through precipitous heights, inaccessible to infantry, if defended in rear with guns and infantry, posted so as to command the passage and the exit, cannot, in these days of arms of precision, be forced without an expenditure of life too appalling to contemplate. Indeed, such passages, if they cannot be turned or surprised, may be deemed impassable.

A short defile, with open though inaccessible flanks, such as a bridge or a ford over a river, so long as the actual passage remains under the aimed fire of the defenders' guns or entrenched infantry, will rarely justify an open assault.

History affords instances of bridges of considerable length having been forced in the presence of highly-trained and disciplined troops; but since the days of Lodi and Arcola, owing to the increased accuracy of fire-arms, unless the defenders' artillery and rifles are both silenced, and compelled to withdraw out of range, an open frontal assault in column can hardly be expected to succeed.

A MOUNTAIN DEFILE is defended from the *flanks* if the flanks are accessible (Plate XXXI., Fig. 1), otherwise in *rear* (Plate XXX., Fig. 1); except when it is necessary to cover the retreat of troops through the defile, in which case the defile is not only defended in rear, but held in front by lunettes and barricades (Plate XXX., Fig. 3).

A CAUSEWAY is defended in the same manner as a mountain defile, the flanks of which are not accessible (Plate XXX., Fig. 2).

A BRIDGE is also defended in rear (Plate XXXI., Figs. 2 and 3), except when it is necessary to cover the retreat of troops across it, in which case it is held also in front by a *tête de pont* (Plate XXX., Fig. 4), and except when cover is available on both sides of the river, in which case the position in front is held as long as possible, and the position in rear afterwards defended (Plate XXXI., Fig. 4).

Frequently, during a retreat, the entrance to a defile with inaccessible flanks may have to be guarded to enable the rear guard to be withdrawn in safety from a position it has been holding in front of it. Nevertheless, after covering the withdrawal of any troops outside, the main defence would still generally be in rear.

The chief danger of the defence in front is that it may be so prolonged as to enable the assailants to enter and issue from the passage in contact with the last of

the covering party, and thus compel the defence in rear to restrain their fire for fear of shooting their own men.

Defiles with flanks accessible are defended from the flanks at the entrance, because the assailants will direct all their efforts to securing the flanks before entering the passage which they command.

Sometimes a small force may considerably prolong the defence of a defile, by holding a position in the interior which cannot be turned; but, with an adequate force to defend it with a defile should rarely be defended in the interior.

When a force is advancing one of the most important duties of the advanced guard may be to push forward and secure for it the debouchment from a defile. In this case the defile would be either covered in front, or held on the side nearest to the enemy by the troops composing the advanced guard.

From the foregoing remarks it will be seen that defiles should only be held for one of two purposes:—

- (i.) To deny their passage to the enemy, or delay his advance.
- (ii.) To keep the passage open for the use of one's own troops, either to advance or retire through.

And that they may be defended in three ways:—

In front, to cover the debouchment of a force when advancing, or its passage if retiring.

In rear, when the object is to prevent the enemy getting through.

In the centre, when the defending force is weak, and it is imperative to try and delay the enemy.

Hollow roads, railway cuttings, &c., constitute defiles of a minor description, and must be defended on the flanks, which are usually accessible.

Narrow lanes, especially if they are deep, can best be barricaded by cutting down trees and laying them across.

Embankments may be defended as causeways. A deep, transverse cutting will cause a considerable amount of delay, if the material for repair is made away with; for, in such situations, trees, planks, &c., wherewith to bridge the chasm, are not often procurable.

The Passage of Defiles.

Defiles should be carefully reconnoitred before any attempt is made to pass through them in the presence of an enemy, and every endeavour should be made to turn them. Until the return of the reconnoitring parties, guns should be posted to bring a cross-fire to bear on the entrance. If the defile is apparently unoccupied mounted infantry or cavalry scouts should pass rapidly through and reconnoitre sufficiently far on the opposite side to be able to report that there will be time for the advanced guard not only to pass, but to deploy before it can be engaged.

If the defile is occupied, and cannot be turned, it should be attacked by artillery and infantry. If the attack is successful, some guns should be pushed through as quickly as possible to take up a position on the far side with the infantry. The remainder of the advanced guard will then pass through in the following order, a battalion or brigade of infantry leading, then the remainder of the guns, followed by the main body of the infantry, and lastly the cavalry, which will resume its place at the head of the column before the march is resumed. If a defile can be turned, the enemy must be engaged in

front whilst the turning movement is carried out. If the flanks of a defile are accessible, the passage should never be forced until the flanks have been secured.

Bridges and fords are defiles, but their defence depends greatly upon the width of the river, and on local conditions. A bridge is easily defended when it is low down in a re-entering angle, and when the defender's side commands the other, and the enemy's side does not possess good cover. The defence of a bridge or a ford will be influenced chiefly by the consideration whether there exists

Cover on the defenders' side.

Cover on the assailants' side, or

Cover on both sides, as in the case of a river running through a town or village.

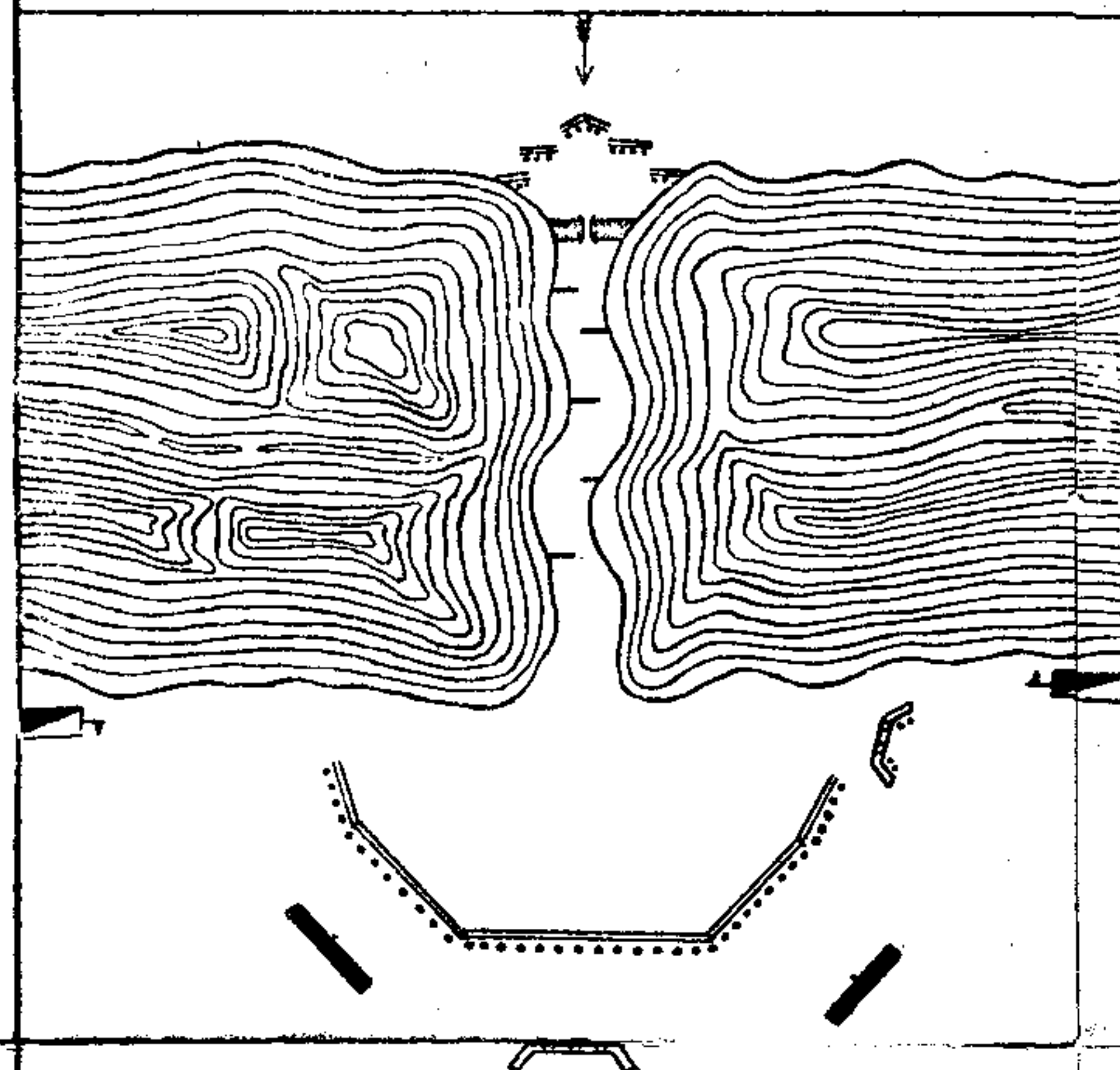
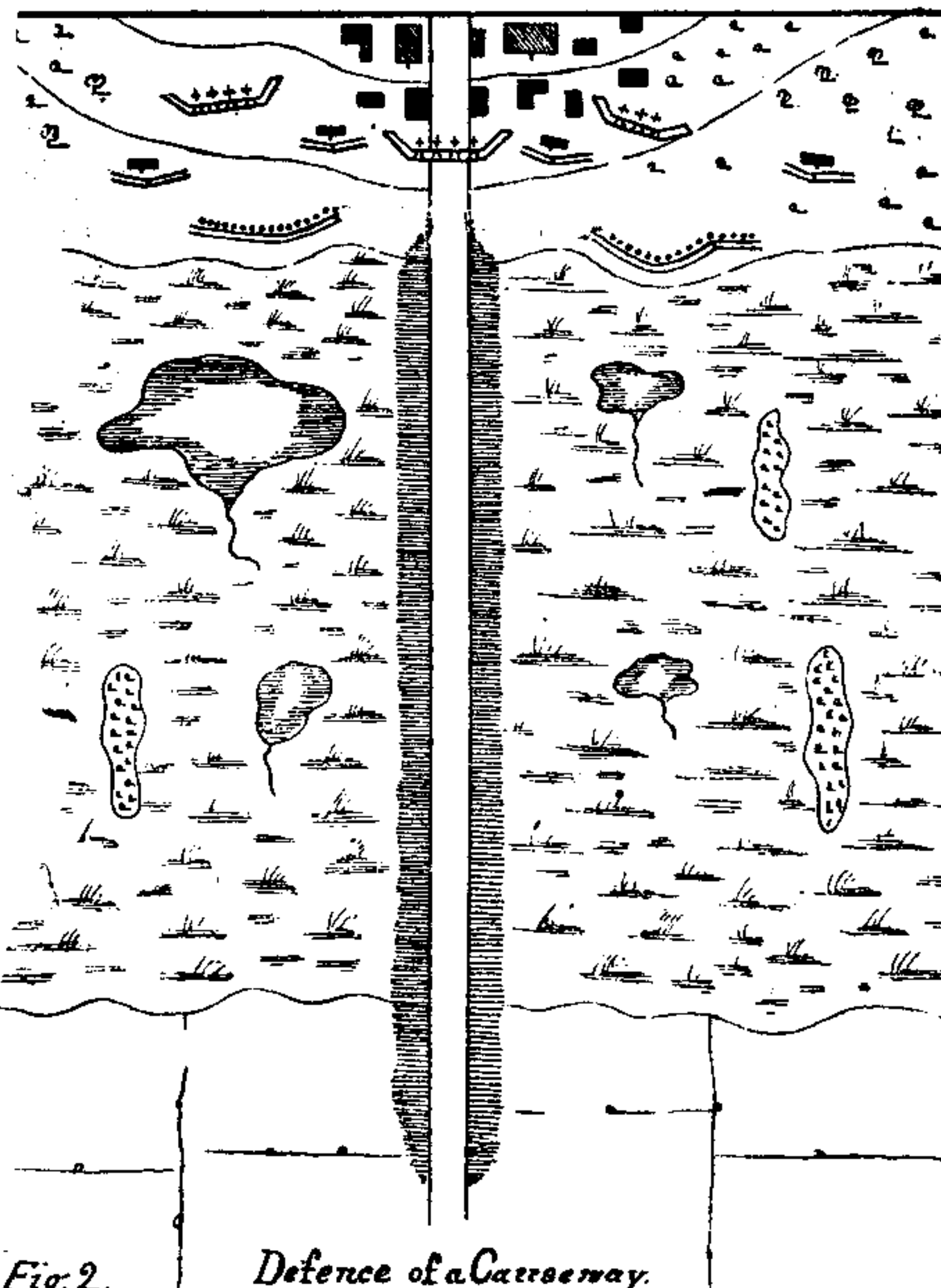
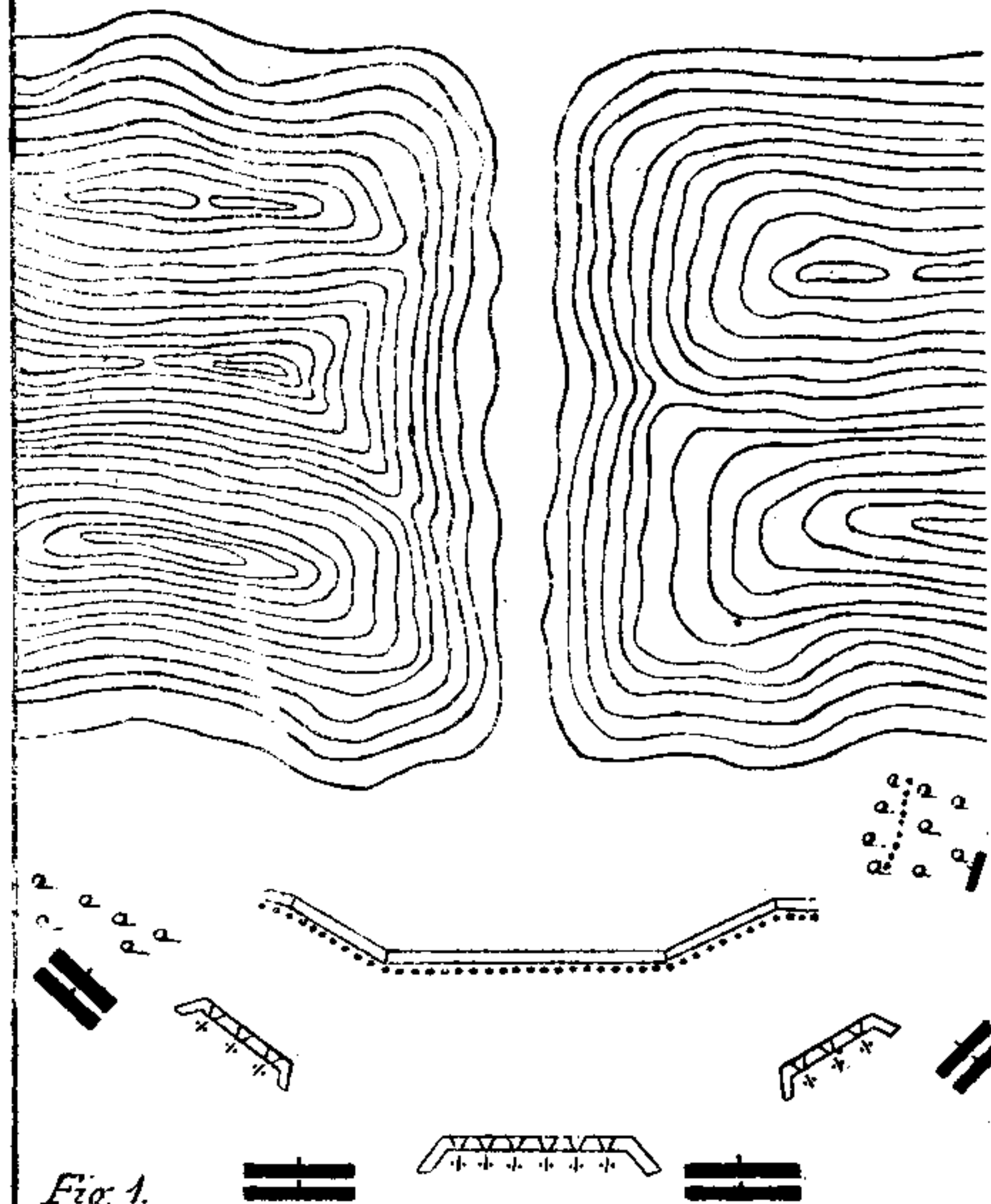
In the first instance, the defenders would first endeavour to prevent the assailants getting down to the bridge, and then oppose any attempt at crossing (*Vide* Plate XXXI., Fig. 2).

In the second case the defenders would (unless they commanded the other bank) retire some distance out of range of the assailants, and take up an entrenched position so as to command the bridge, and the exit from it, and thus render useless the cover possessed by the assailants (*Vide* Plate XXXI., Fig. 3).

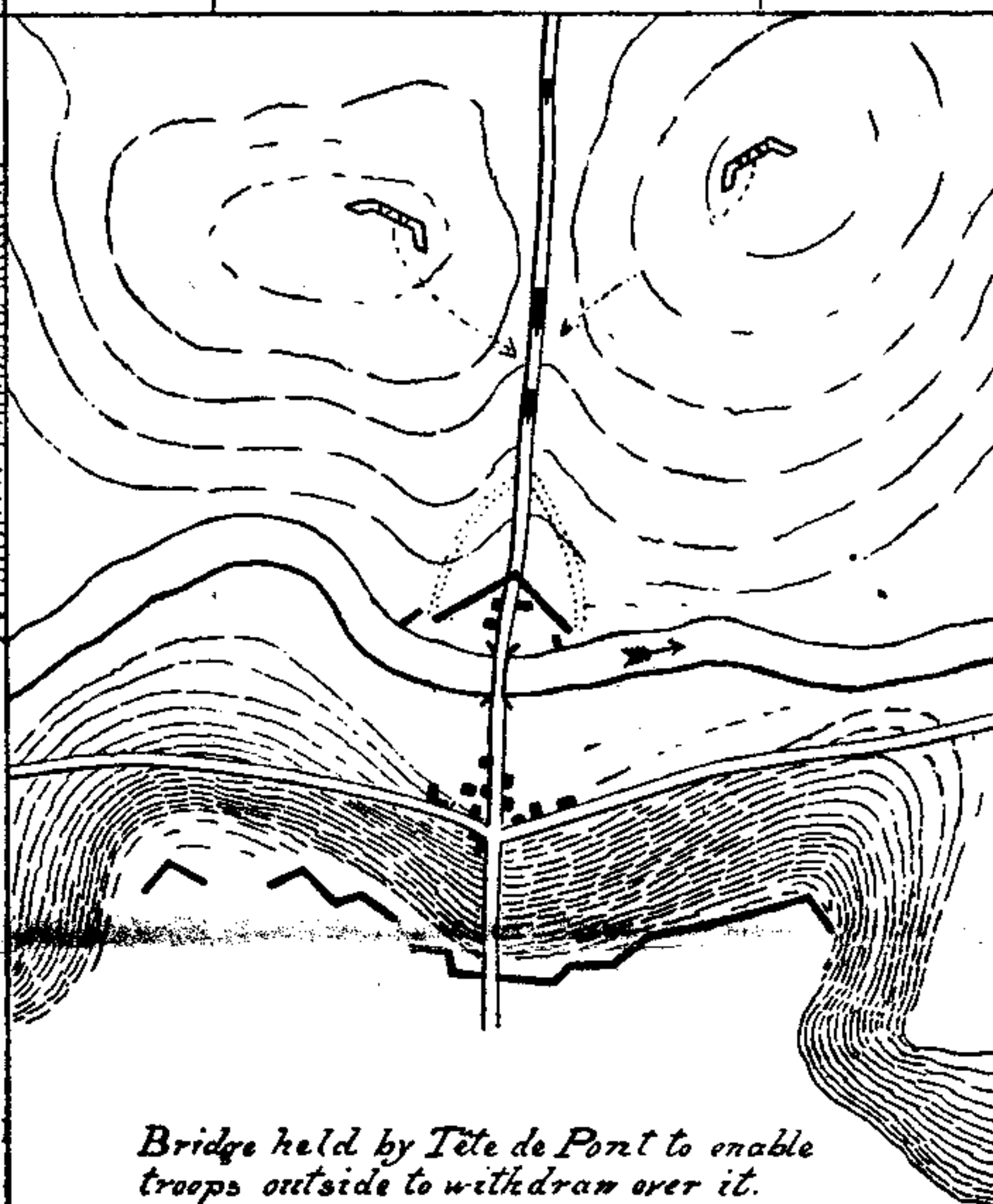
In the last case the defence would be in front of the bridge first, and afterwards in rear; every advantage being taken of the cover afforded by the houses, enclosures, &c., to prevent the enemy approaching the bridge (*Vide* Plate XXXI., Fig. 4).

But care must be taken, if obliged to retreat, that the defenders retire in time to get across the bridge safely before the assailants rush it, or bring their guns to play upon it. There are, then, two courses open to

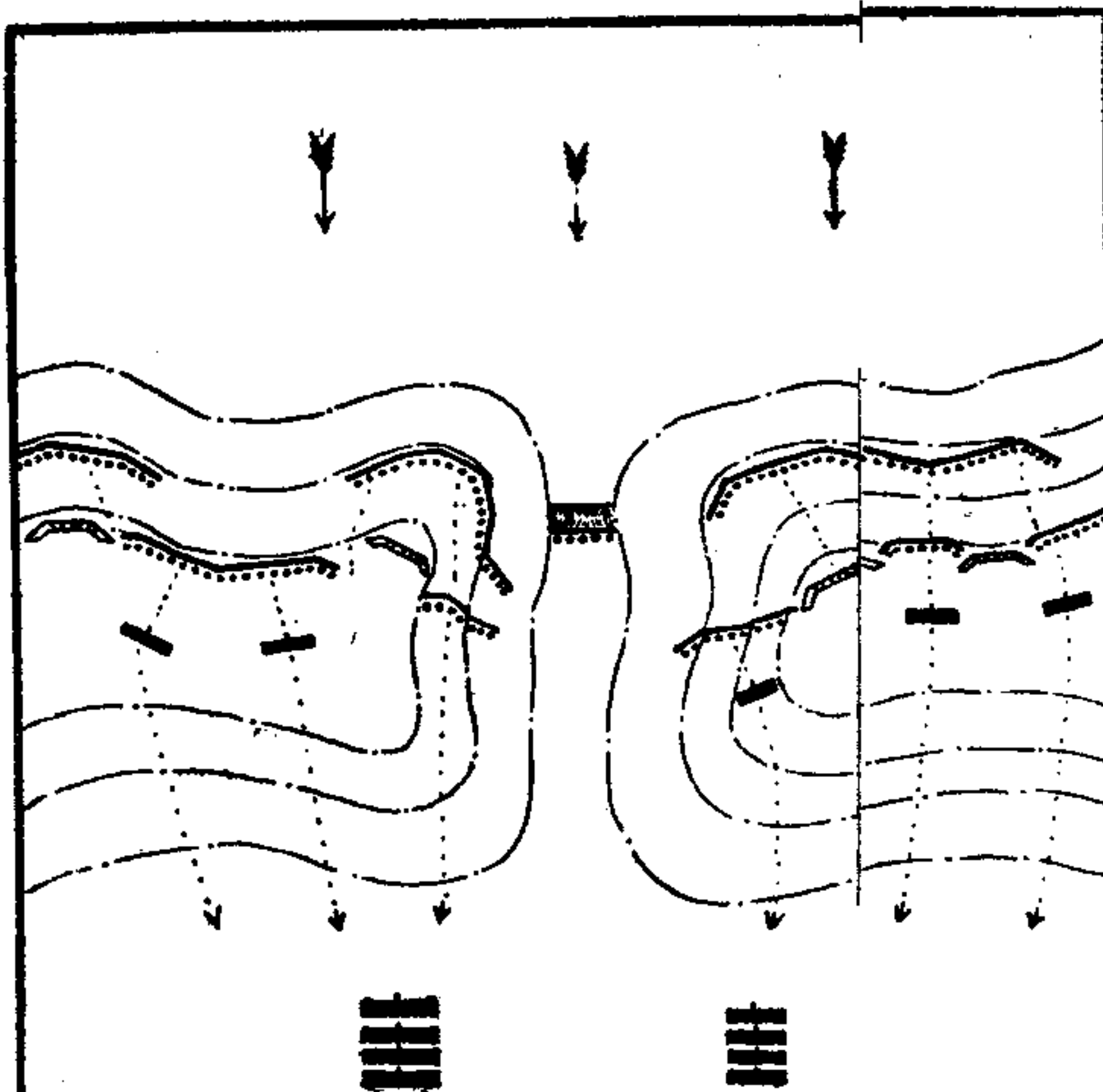
*Defence
of a Mountain Defile with Inaccessible Flanks*



*Defile
heights inaccessible, held in front to enable
troops still outside to reach the passage.*

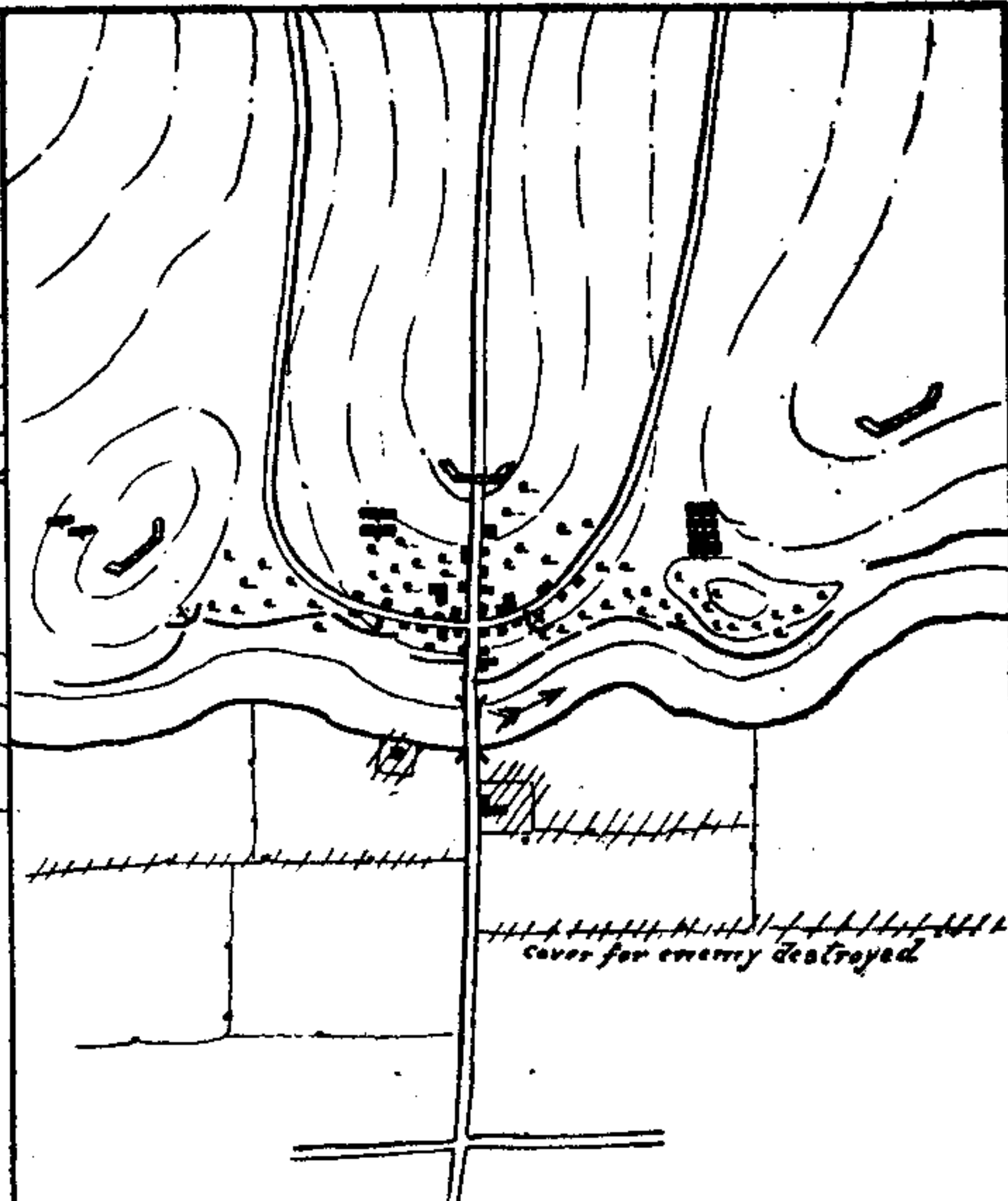


*Bridge held by Tête de Pont to enable
troops outside to withdraw over it.*



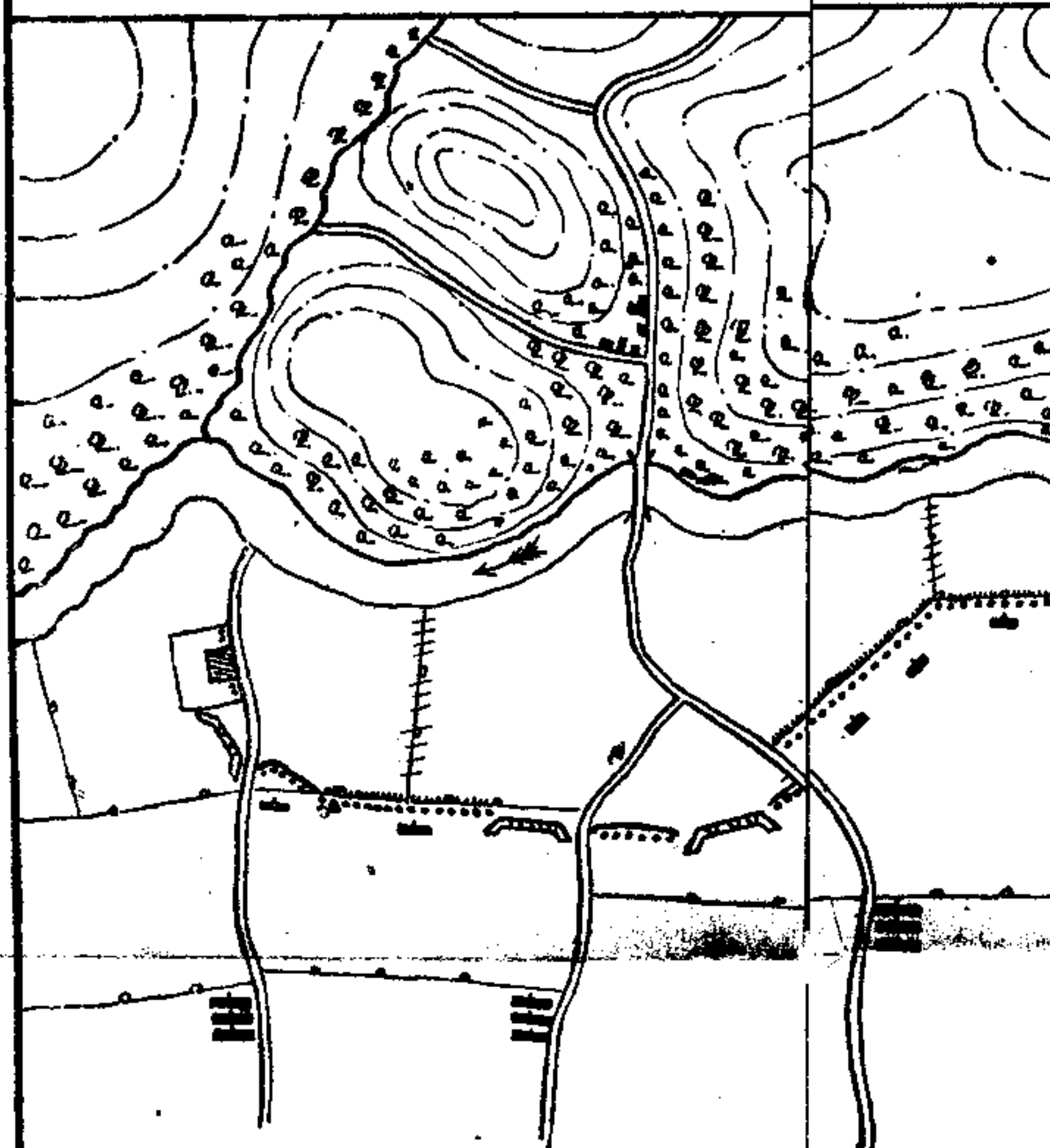
*Defence
of a mountain defile with flanks acces
sible.*

Fig 1.



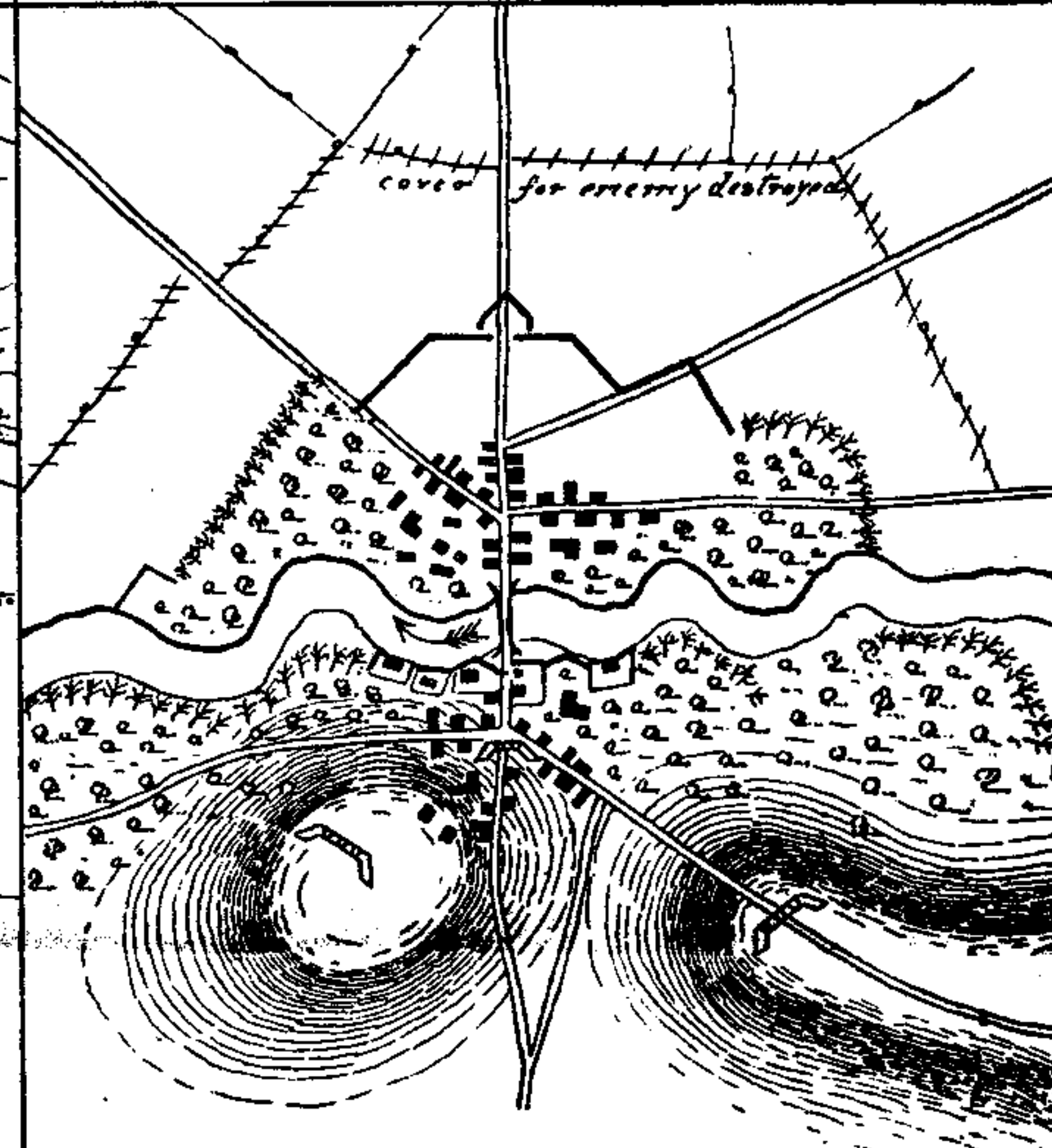
*Defence
of a bridge with cover on the defenders side.*

Fig 2.



*Defence
of a bridge cover on the enemys side.*

Fig 3.



*Defence
of a bridge cover on both sides of river.*

Fig 4.

the defenders, viz., to blow up the bridge, or defend it from the rear; if they are expecting reinforcements, and want to use the bridge, the latter course will be adopted.

It should be borne in mind that troops falling back are difficult to rally, and cannot always be relied upon to defend a second position. If reserves are available, it is advisable to let the old fighting line fall back, and form up in reserve of a new one, composed of troops who have been less seriously engaged.

General Skobelev is credited with having said that every army is composed of three classes of men, viz., the very brave, the moderately brave, and the cowards. It is a question which class causes a commander most trouble, the recklessly brave soldiers, or the cowards. What he has to consider is the normal amount of endurance of an average man. Strict discipline is the best safeguard against man's inherent fear of death; hence the necessity of enforcing what the Prussians call "fire discipline."

Bridges and Fords.

Unless surprised or turned, to attempt to force the passage of a bridge or a ford in the presence of an enemy who still commands the passage with his guns in position, and his infantry entrenched or provided with cover, in these days of improved firearms is such a dangerous operation as to be practically almost an impossibility. It is now considered absolutely necessary to subdue the enemy's fire before a bridge or a ford can be attacked by infantry.

Accomplishing the passage of a river in retreat in presence of an enemy is about the most difficult operation that an army can be called upon to attempt.

CHAPTER XVIII.

WOODS.

WOODS, like villages, are important points on most battle-fields, and are generally occupied when on the flanks of a position, and sometimes when in front.

If they are too large to hold they are weak points in the defence, but they are a disadvantage to the assailant also, as they break up his formations and absorb his troops.

Small woods are better for defence than large ones; they also aid the assailant by giving cover to his supports and reserves.

In wood-fighting the control of troops engaged passes into the hands of subordinate officers, and there is, perhaps, no class of fighting where the combatants are more likely to be called upon to act for themselves in an intelligent manner.

Woods afford cover from fire and view, and admit also of the movement of troops, especially of infantry.

If a wood is so situated that it ought to be held, the heart of the defence lies in its outer edge, which must be manned; but when woods are extensive they may require too many troops to do this satisfactorily, and it is often better to take up a position in rear and prevent the enemy from debouching.

When deciding whether to occupy the outer edge or

take up a position in rear of a wood, the following points should be considered :—

- (1) The size of the wood and the number of men required to hold it.
- (2) Its tactical situation with regard to the main position.
- (3) Cover outside for the assailants to approach by.
- (4) The presence of suitable positions from whence the attack can be not only prepared but supported by artillery fire.
- (5) Whether the wood is to be held to the last or only temporarily.

If the object of defence is to repel the enemy, this must be done from the outer edge; but a wood may sometimes be used to greater advantage by allowing it to absorb the assailant's troops, and then from a position in rear overwhelming them as they attempt to leave it.

This method is sometimes advocated when a wood runs deep up into a position, and the defenders withdrawing from it would be likely to be closely pursued; again, if the formation of the ground in front or on the flank of a wood favours the assailants, or in the case of a wood situated in front or on the flank of a position from which it would be difficult to get back. Such woods will often be best utilised by the defenders taking up a position in rear of them.

It is doubtful when opposed to modern artillery, massed, under favourable conditions, whether the outer edge of a wood is tenable.

Against savage troops who have to advance over the open without the support of artillery, the outer edge of a wood retains all its advantages for defence. Once inside

a wood the troops that are the best supported, whether defenders or assailants, generally win the day.

Before placing a wood into a state of defence it should be carefully reconnoitred, and the following points noted :—

- I. Its breadth, depth, shape, and open spaces.
- II. Roads, paths, streams, ravines, and their direction.
- III. Cover outside or undulations of ground that would shelter or conceal an attacking line. As the heart of the defence of a wood lies in the retention of its outer edge, a good field of fire from it is very important.
- IV. Flank defence afforded from other parts of a position occupied, and to what extent troops detached to hold a wood can be supported.
- V. To defend a wood, 2 men per yard of its outside or exposed edges should be considered sufficient, including supports and reserves.

The Defence of a Wood.

- I. Cut down brushwood or trees round outer edge and throw up trenches behind the *entanglement* thus improvised, taking care that the entanglement does not impede the view of the firing line. *Trenches*, owing to the roots of trees near the surface, are often difficult to dig, in which case small trees may be cut down and laid across the openings between the larger ones to form a barricade. The *Salients* are especially vulnerable, and should be first attended to, and afterwards the re-entering angles.

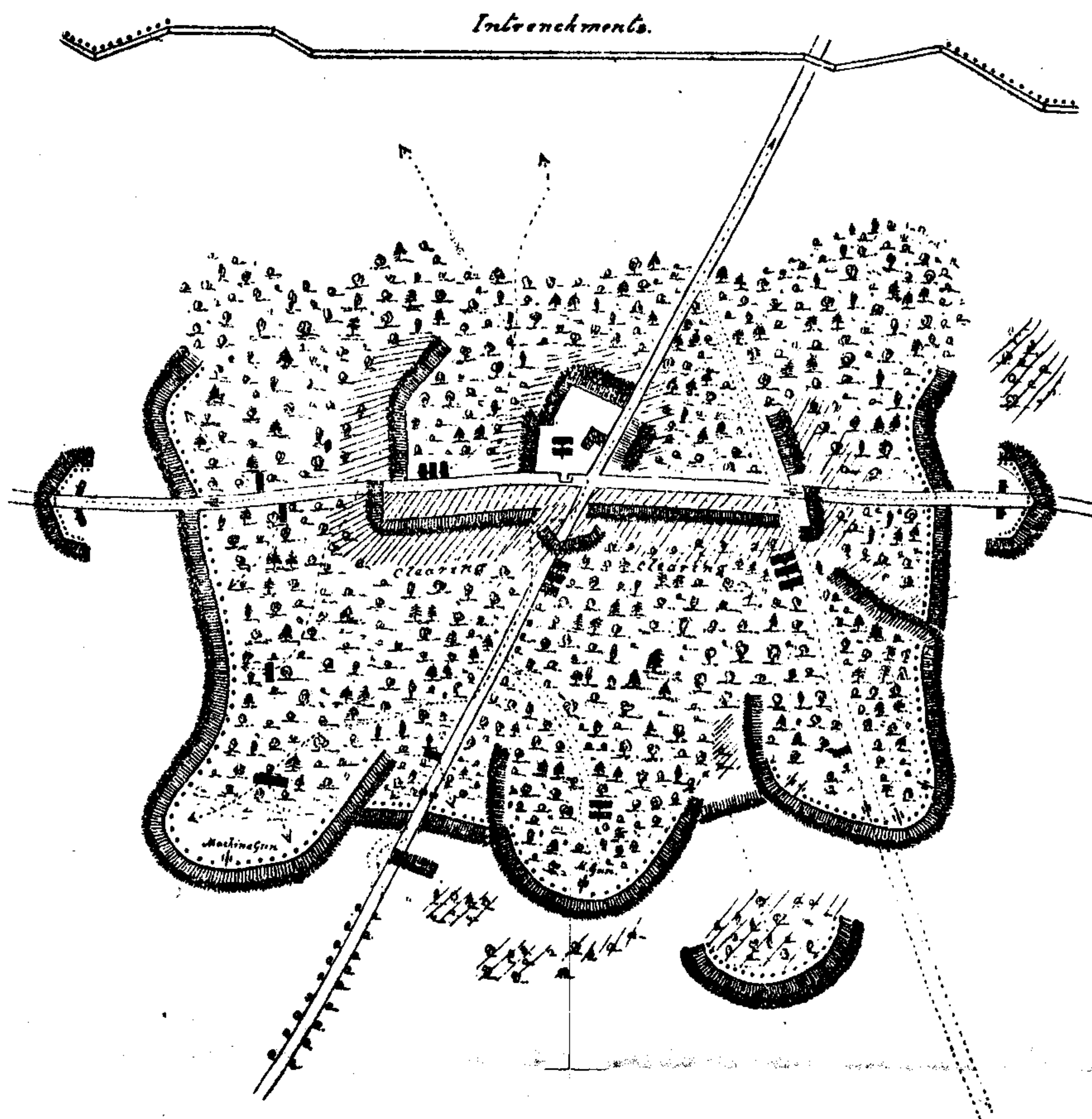
- II. Place guns behind epaulements or where they can command the whole of the approaches. When introduced into the wood their lines of retreat must be amply provided for, so that the guns must be placed near the roads. The best place for them is, therefore, often outside the wood, not in front, but on its flanks.
- III. As the heart of the defence of a wood lies in its outer edge, supports and reserves should be posted so as to be quickly pushed into the fighting line.
- IV. Roads leading from the enemy, if not required by the defenders, should be cut up; but, if wanted to issue by, should be enfiladed near the entrance by lunettes (open works forming a salient angle with short flanks) or barricades placed across them rather in front of the wood. Abattis should be carried back on both sides of the road some distance into the wood, and an inner barricade erected across the road in rear. This arrangement is to prevent the enemy spreading out directly he gains a footing in the wood.
- V. If a road, stream, or ravine happens to run through the wood more or less parallel to the outer edge, a second line of defence is sometimes formed along its rear side. But in this case a separate garrison should be provided, as men on the run, especially in the hopeless confusion of a retirement through a wood in contact with a pursuing enemy, are hardly to be depended on. As a general rule, when a second line of defence

is decided upon, the first line should be directed to fall back to an entrenched position about 500 yards in rear of the wood, there to be rallied and held ready to protect the withdrawal of the second line, or to go forward to its assistance, if the enemy has been seriously checked by it. In this manner a wood may sometimes be recaptured, but, as a rule, next to its outer edge, the best line of defence is a line of entrenchments lying about 500 yards in rear of the wood.

VI. If the wood is isolated, the reserves should always hold an entrenched position in rear of it, to cover the withdrawal of the defenders. If held in connection with a position, every available man should be near its outer edge.

VII. The withdrawal of troops through a wood is always a difficult operation, and communications are of the greatest importance; they should, therefore, be clearly marked out. A wood, if at all extensive, should be divided into sections for defence, with non-commissioned officers posted at intervals to tell men of their own battalions, or brigades, in what direction they are to pass; otherwise, in retiring, the utmost confusion is almost certain to reign.

In Plate XXXII. we see the principles generally laid down for the defence of a wood carried into practice. The outer edges, both of front and flanks, have been entangled and entrenched. Behind this shelter the firing line is extended with their supports close in rear, and their reserves at no great distance. The guns are



*Garrison's battalions, 12 batteries, & 2 machine guns.
Scale 12 inches to 1 mile.*

Q.

placed in this case, not outside the wood, but behind the entanglement. They are, however, so placed that their fire will sweep the main approaches. At the same time they are favourably disposed for retirement. The shape of the wood is such that its outer edge nearest the enemy forms three salients. The defence is thus naturally divided into three sections. One road leading from the enemy is cut up, the other is left open, except for a barricade.

A road running parallel to the front through the wood is defended at both ends by lunettes and is held, as it forms a natural "second line" of defence. In rear of the wood a line of entrenchments has been prepared for the "first line" to retire to, and from whence they can, after being rallied, either reinforce the "second line" or cover its retreat. The defenders have no cavalry, but if they had it would be best placed in rear of the wood on the flanks. It will be observed that the lines of retreat are all clearly marked out.

Attack on a Wood.

Like all other attacks, that on a wood should commence by a heavy cannonade, with a view to silencing the enemy's guns. The artillery fire should then be concentrated on two or more salients which it has been determined to carry by assault. Guns should also keep the defenders generally employed all along their front, and especially on the flanks, if they can be reached. Of course, the effect produced by this artillery fire will depend greatly on the number of guns that can be brought into action. Supposing the assailants to have plenty of guns, they ought, by firing at different ranges, to endeavour to keep the salients about to be assaulted entirely denuded of defenders for a depth of about 100

yards. While the artillery bombardment is proceeding, the infantry should be formed for attack. If possible, the infantry attacks should be delivered obliquely, so as not to cloud the fire of the guns. As soon as the infantry get within about 500 yards they should open a hot fire. Under cover of the distraction caused by this sudden fusillade, a portion of the guns should be rapidly moved forward, and brought into action at the closest possible range. The infantry should then make a determined dash at the wood, supported by a tremendous fire from all the guns.

The best formation in which to carry a wood is that of successive lines of skirmishers pressed on one after the other until a footing has been gained somewhere. The reserves should then be poured in as fast as they can be got up, and the defenders pressed back through the wood until the further edge is reached, or a second line of defence has to be carried. This is seldom a serious undertaking, if the defenders of the first line are vigorously followed up, as their presence, to a great extent, masks the fire of the second line.

The moment the infantry gain a footing the guns should gallop up, going round the flanks if they can; if they cannot get round, some light guns should follow the infantry through the wood, with a view to being up to aid them by their fire to hold the far edge against the counter-attack which may be anticipated.

As the assailants attacking a wood have generally to cross the open, and usually suffer heavily from the fire of an invisible enemy of unknown strength, a repulse is very discouraging, and the most strenuous efforts must be made to prevent the men halting to fire, and to lead them forward at all hazards. A strong second line is always necessary to confirm the success of the troops in front, who are certain to get disorganised.

CHAPTER XIX.

VILLAGES.

ON a field of battle, one or more villages usually form prominent tactical points, for the possession or retention of which the most strenuous efforts are made.* A village is often situated at the junction of important roads, and is then of the first importance. Villages, hamlets, farms, or large mansions, with their surrounding out-houses, all come under the same classification, though their tactical importance will depend on their situation, and on the extent to which troops holding them can be supported.

In connection with a position there are five kinds of villages, or groups of buildings, one or more of which are likely to be met with.

1. A village on a flank.
2. A village in or about the centre of a position.
3. A village in front, within artillery range of other portions of the position.
4. A village in front, beyond artillery range, but still too near to be disregarded.
5. A village behind a position, or on a line of retreat within range of it.

The general outline of the *exterior* defence for each is roughly indicated in Plate XXXIII., where five villages are shown as held in connection with a position.

* Villages are not so defensible as they were before the days of rifled cannon; in fact, unless sheltered from distant artillery fire, it is doubtful whether they ought to be occupied at all.

No. I. is defended in front and on its exposed flanks.

No. II. in front and on both flanks.

No. III. same as No. II.

No. IV. all round, and provided with a strong *reduit* or citadel.

No. V. in front and on flanks.

Without seeing a position it is impossible to say which of its features is the most important; but a village, unless it can be held in connection with the rest of a position, ought rarely to be occupied, as it is pretty certain not to be attacked unless its possession is essential to the assailants. No unnecessary sieges is a maxim of strategy: no unnecessary assaults is equally applicable to tactics.

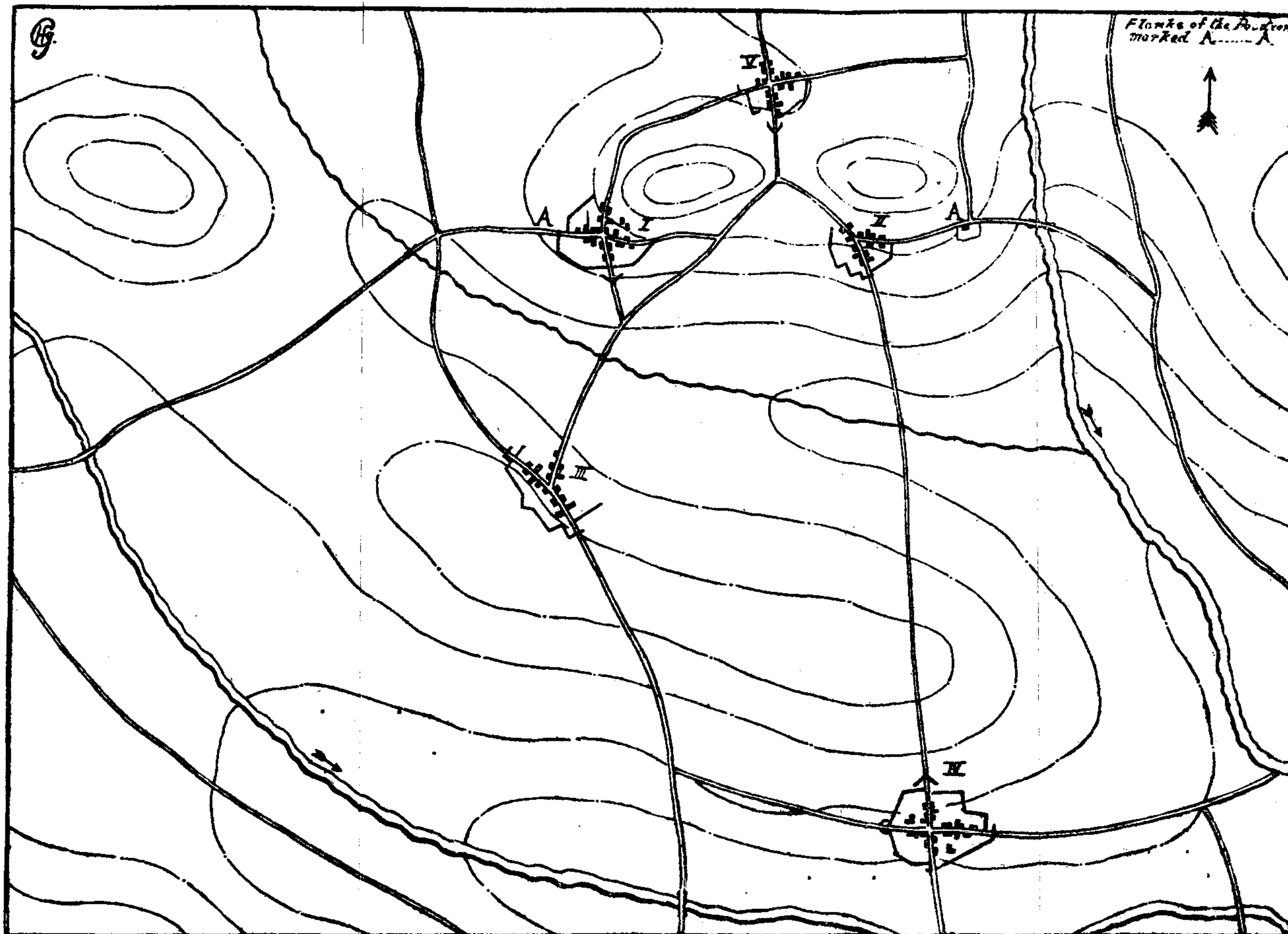
The defence of villages comes under the head of field fortification rather than tactics; but it is difficult, if not impossible, to draw a line between field fortification and tactics in these days of hasty field redoubts and entrenchments in connection with modern battle-fields.

Villages may conveniently be divided into two classes for the purposes of the tactician:—

1. Villages held in connection with a position or a line of investment.
2. Isolated villages.

Isolated Villages are extemporized forts, and, with time and labour available, can be made capable of great resistance. They are generally utilized for depôts on a long line of communications, and should, as a rule, be selected in preference to small towns, the civil population of the latter being a source of anxiety and trouble. Again, isolated villages are often held at the exit or entrance to mountain passes, or where they command the approach to a bridge or ford over a river.

The only difference between the defence of an



Contours 60 feet.

FIVE SPECIMENS OF VILLAGES IN CONNECTION WITH A POSITION

isolated village and one held in connection with a position is, that *the former is generally prepared for defence all round.*

If a village is to be held to the last, or until reinforced, it should be strongly fortified, and a reduit or keep must be prepared for the garrison to make their last stand in. If, on the other hand, it is only to be held for a certain time, and then abandoned, it is useless to prepare a keep, and the defence will chiefly depend on the tactical handling of the troops.

Villages held in connection with a position are usually so important that, if carried by the enemy their recapture will often be necessary, in which case a reduit is of great importance. The garrison told off to the reduit must be kept quite separate from the rest of the defenders. They must shut themselves up, and refuse to surrender, even when the village is full of the enemy. Their general will then retain a hold on the village, and the enemy will have a foe in their midst—a circumstance which will materially assist in the recapture of the village.

*Four Principal Considerations which Influence the
Defence of a Village.*

- I. To what extent it commands, or is commanded by, the surrounding country.
- II. The nature of the obstacles in its immediate vicinity, and to what extent they can be utilized in the exterior line of defence.
- III. Nature and construction of houses, width of streets, and situation of strong buildings capable of being grouped together or formed into a keep.
- IV. Time and means available for putting it into a satisfactory state of defence, and number

and description of troops for defending it with.

Steps in Defending a Village.

I. Establish exterior line of works.

(a) To prevent surprise.

(b) To occupy during the artillery bombardment.

This zone of defence should, as a rule, be clear from bricks and mortar, not more than 120 yards or less than 40 yards from the outer edge of a village. If more than 120 yards it would require too large a garrison to defend it; if, on the other hand, less than 40, the village might be surprised and rushed in the dark, and the shells directed against it would injure the defenders occupying outer zone.

II. Establish interior zone of defence by connecting garden walls, &c., on the outskirts of the village, and loopholing them. The second line of defence is held with a view to recapturing the first if it is taken, and should be regarded as offensive.

III. If the village is fortified all round, or to be defended to the last, establish a reduit, or keep, in some strong building. The keep is a last resource to hold on to when the village is occupied by the enemy.

IV. Clear the front of exterior zone of all cover for enemy, and also the space between the exterior and interior zones of defence.

V. Divide the village, if large, into sections for defence, and mark out clearly the lines of retreat.

VI. Post the garrison on the principle that after enough men have been detailed to defend

the exterior zone the rest should, after detailing a separate garrison for the keep (if there is one), be held in readiness to defend the village against a rush in any direction. A general reserve should be kept outside, in rear of the village, to make counter attacks.

VII. The best place for guns, provided they command the approaches, is on the flanks, outside the village, in which case they must be provided with epaulements and cover for the waggons and teams. When not on the flanks, guns may be posted on any commanding ground in the vicinity whence their fire can be brought to bear upon the approaches.

Guns (machine guns excepted) should rarely be placed in interior zone of defence, and when they are, should not open fire until the assailants have carried the exterior line, as they attract the concentrated fire of the assailants. Guns should not be placed along the exterior zone for the same reason, and also because they are liable to be captured and turned on the village, and their epaulements would give useful shelter to the enemy.

The Attack on a Village

is generally attended with severe fighting; it should invariably be commenced with the concentrated fire of guns directed on the most vulnerable points.

The defenders' guns should be silenced if they show. The assaulting battalions should be simultaneously directed on two or more points, with supports close at hand. Cavalry act as usual, on the flanks. At the

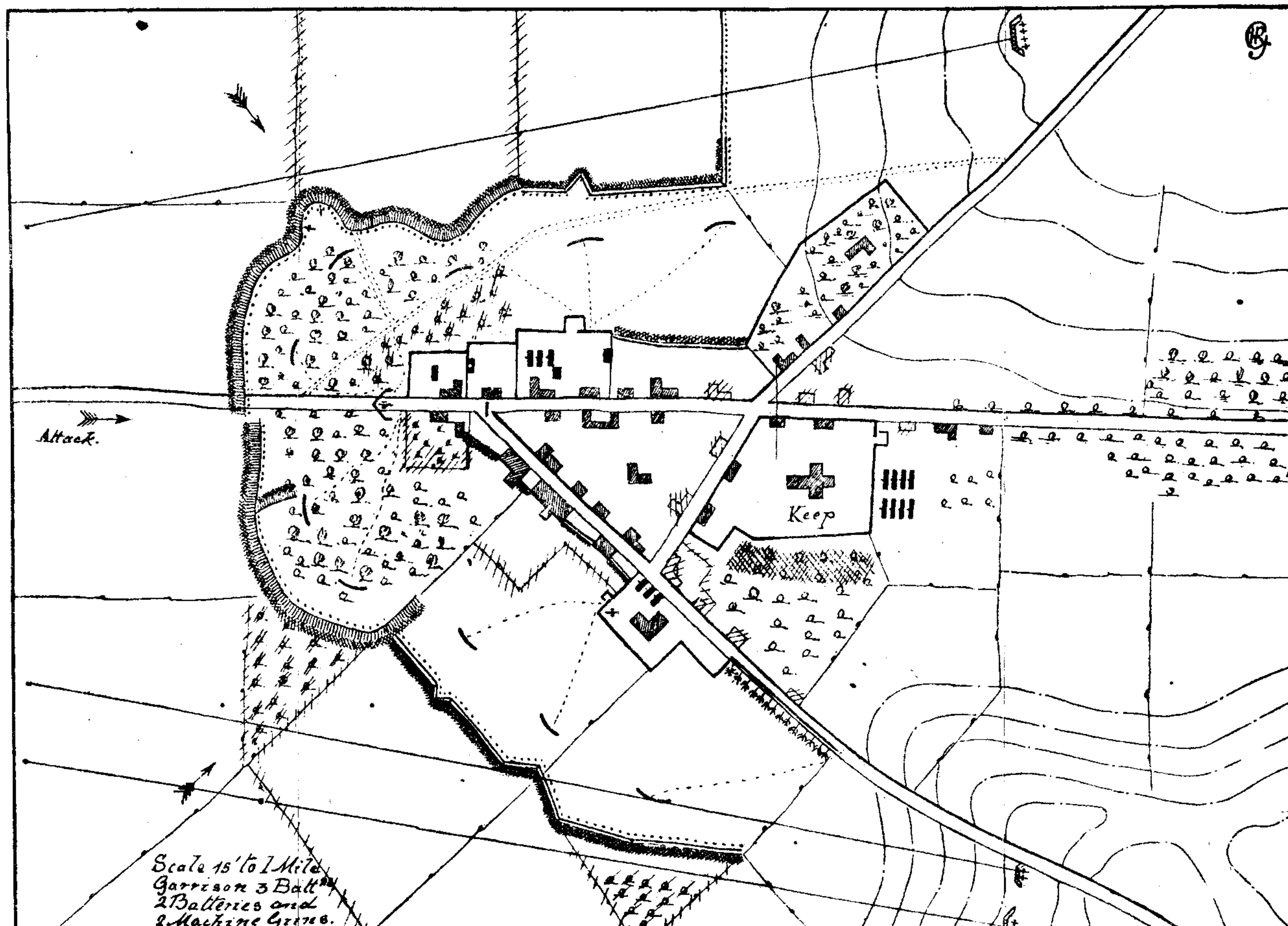
moment of closing on the village all three arms should be able to co-operate. Before entering upon the assault the different brigades or battalions should be given general instructions where to rally, and, in the event of the village being carried, preparations should at once be made for putting it into a state of defence against counter-attacks. In all cases the reserves should be kept well in hand, and only introduced as required, a portion being kept back to meet unforeseen emergencies.

— In Plate XXXIV. we see the general principles laid down for the defence of a village carried into practice. Front and flanks fortified by abatis and shelter-trenches, and defended by firing line with supports. This is the exterior zone of defence, about 120 yards distant from the village.

The village itself is fortified by loopholing walls and buildings, and connecting them when detached. The defenders keep clear of the houses and walls until the attack has developed and the outer defences are in danger of being carried. The guns are placed on the heights in rear of the flanks, from whence they command the main approach and afford flank defence to the outer and inner zones.

The “reduit,” or keep, is isolated by knocking down the houses in the immediate vicinity, and the lines of retreat are all clearly indicated for the defenders of the exterior line to retire by.

In further illustration of this subject, I have been furnished by Lieutenant-Colonel Mallock with a scheme for the defence of a village and wood, giving detail of time, labour, &c. This scheme was worked out by him as one of the practical exercises of the Staff College course, and is added as an Appendix to this chapter.



APPENDIX TO CHAPTER XIX.

S C H E M E

FOR

THE DEFENCE OF FRIMLEY VILLAGE

AND THE

WOOD TO THE WEST OF IT.

(PLATE XXXV.)

Central points of a position taken up by an army corps on Fern and Frith Hills, facing South.—Time available; 48 hours.

Force.

1 brigade of infantry, war strength.

1 company R.E.

2 Gatling guns.

One section of equipment troop accompanies the force.

DESCRIPTION OF THE POSITION.

RIGHT.

The wood forming the right of this position has a front of about 900 yards, and, for description, may be divided, as in the map, into three parts, viz.:

Covey Wood.

Hard wood trees, of no great growth, thick underwood; its southern portion swampy, and bounded by a wet ditch, from 15 to 20 feet wide.

Gaston Copse.

Same description of trees, but ground drier, and underwood recently cut.

Goldy Moor.

Bounded on the south side by an earthen fence, with a wet ditch on the inner side, its southern portion composed of same description of hard wood trees, thick underwood, but in the belt connecting with the Bristow Farm by-road (see Plan), chiefly composed of small fir trees with less underwood.

CENTRE.

The centre of the position has a front of about 600 yards, and is composed of meadow land much intersected by fences.

LEFT.

The village of Frimley forms the left of the position. Its houses, mainly clustered and dotted along the two main roads, from Bagshot and York Town to Frimley Green and Farnborough [their positions being fairly accurately represented in the accompanying sketch] are built generally of brick; the most substantial being Frimley Lodge, Cedar Lodge, the Manor House, and the Church. The left front of the position, lying between these main roads, is meadow land, also intersected by fences.

Nature of Fences.

The fences generally are banks of earth, varying in height from three to six feet, in no case less than two feet thick at the top, mostly topped with brushwood, and having either wet or dry ditches on the inner side.

River.

The river Blackwater, which runs from east to west, along the greater portion of the front of the position, is a small stream of from five to 15 yards broad, whose bushy banks, muddy bottom, and liability to floods, render it a formidable obstacle.

Slope of Ground.

The ground slopes very gently from the rear of the position towards the river. It rises on the enemy's side, and good artillery positions would there be afforded him were they not commanded by the protecting artillery on Frith and Fern Hills.

SCHEME OF DEFENCE.

Wood.

By improving existing fences, digging shelter trenches, clearing brushwood, and placing obstacles, to defend the outer edge of the wood by a single continuous line.

By felling trees, clearing brushwood, and by improving the northern boundary fence, to render that fence available for a second line of defence.

To arrange paths of retreat for the defenders of the front line.

Between Village and Wood.

To defend the ground in front of the village by bringing a cross fire from the wood and the village upon it, and by removing such fences as would in any way interfere with that fire.

Village.

To defend the village: 1st, by the outer line, as shown on the accompanying plan, making use, as far as possible, of existing fences, supplemented by shelter trench; and, 2ndly, by demolishing such houses as would afford cover to an enemy, and retaining those most suitable for defence; to connect these latter by an earthen parapet, and form with them a second line.

REASONS FOR ITS ADOPTION.

Wood.

The wood is defended in a single continuous line: 1st, because the nature of the ground, the non-existence of any avenues to the front, and the obstacle of the river Blackwater render any offensive movement on this side impracticable, and reduce its rôle to that of passive defence; and, 2ndly, because the wood is too small, advantageously to admit of a second line of defence in the wood itself.

Looking at the large open spaces which exist between the extremities of the wood, it has been deemed advisable to complete the clearing of that wood at a comparatively small cost of labour, and to assign to the second line of defence the task of preventing the enemy debouching from it.

Village.

view to combining a not too great extension of the disposable force with the desire to defend the two main roads and the bridge, to oppose the passage of the river, and to connect with the defenders of the position on the left. Existing fences have been chosen as entailing less labour than the alternative demolitions and constructions, and because the numerous trees in the vicinity protect them, in some degree from enfilade, to which, at first sight, they appear to be exposed.

The second line of defence, for which the most substantial buildings in the village are most happily situated, has been chosen with a view to the main objects, viz.: a denial to the enemy of the two main roads which run through the village, and the defence by cross-fire, of the ground between the village and the wood.

WORK PROPOSED.

Covey Wood.

Dig shelter trench 450 yards in length. The greater portion of this trench will be made according to Profile B, Shelter Trench (*see Plan*), as the ground is swampy, and for the same reason it will be placed as near as possible to the path running through this portion of the wood. To open a clear field of fire, and at the same time to create an obstacle; the brushwood 450 yards by 30 yards (square yards, 13,500) in front of this trench is cut half through, near the ground, and laid towards the enemy.

Gaston Copse.

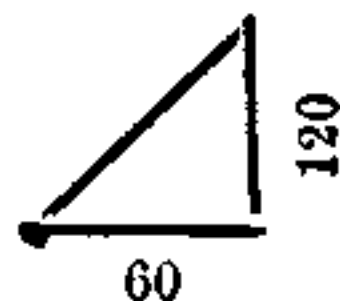
150 yards of shelter trench to be dug in the usual manner, and as no underwood exists, the existing hardwood to be felled and formed into abatis.

Goldy Moor.

The existing boundary fence to be improved. A banquette to be formed by filling up the wet ditch on the inner side with brushwood. For this purpose the bundles now lying

in Gaston Copse would be useful. The hardwood trees in front of this fence are to be felled and placed as in Profile I. on the top of the fence, as protection to the men's heads. As the wet ditch in front of this portion of the wood would afford cover for the enemy's advancing skirmishers, it is to be staked, and an entanglement of wire (obtained from the telegraph in front) placed across it (see Plan). In the eastern extremity of this wood a shelter trench, 150 yards in length, is to be cut obliquely, to bring cross fire in conjunction with the village on the ground between them. The brushwood to be cut as in Coyey Wood and the boundary fence levelled.

Clearing required



3,600 yards.

In the rearward portion of the wood a clearing is to be made to the extent of 35,500 square yards. This will give to the defenders of the north boundary fence a clear field of fire of 250 yards.

2nd Line.

The small copse C is to be made defensible, the boundary fence improved, as in Profile IV., and Bristow Farm placed in a state of defence.

Line of Retreat for 1st Line.

The lines of retreat for the defenders of the wood will be for Covey Wood, by the road to the right outside the wood, and for Gaston Copse and Goldy Moor, also outside the wood, by the fields to the left. By this arrangement the front will be cleared.

Ground between Village and Wood.

Here, as interfering with the fire from the first lines of defence of wood and village, it is considered that 1,100 yards of fence should be removed, and as interfering with that of the second, 430 yards.

Village.—1st Line.

From 700—800 yards of existing fences (as shown in Plan), are to be improved, the solutions for the various problems of improvement are also shown on the Plan.

No. III. is considered the quickest method of making a fence with a ditch on your side, and otherwise of convenient height defensible.

Strong stakes of any rough timber are driven across the ditch into the fence, and the platform laid upon them is composed of gates, hurdles, or planking obtained from the demolition of adjoining buildings.

One-hundred-and-fifty yards of shelter trench, form A, connecting the above fences to be dug.

Village.—2nd Line.

An inner encinte, to be formed by loopholing, and otherwise placing in a state of defence, the houses shaded in the Plan.

Improve 150 yards of fencing according to Profile V. Loophole the adjoining garden wall and also that in rear of the Manor House.

Connect the loopholed buildings by means of stockade work.

Place a barricade with passage through it on the road to Cedar Lodge stables.

Place abatis round 2nd line of defence, 500 yards.

Make gun pits where indicated for the two Gatling guns.

Destroy the fences round the outer line which would afford cover to the enemy, 1,200 yards, and such buildings as would interfere with the defence of the encinte, or which would in this case give cover to the enemy from *which to oppose an offensive movement.*

*Recapitulation Work.***Wood.**

Shelter Trench. Yards.	Clearing. Square Yards.	Fences Improved. Yards.	Buildings.
750	52,600	950	1

Wood to Village.

Fence destroyed.
1,600 yards.

Village.

Fences Improved. Yards.	Walls ditto. Yards.	Shelter Trench. Yards.	Stockade. Yards.	Buildings made Defensible.
1,000	250	150	90	12
Abatis. 550	Gun Pits. 2	Demolitions. Fences 1,200 yards		Houses, &c.

*Time and Distribution of the Working Parties.***Fences.**

It has been calculated that of the fences, with the exception of Nos. I. and V., which entail the extra labour of cutting down trees, the work would be done at the rate of three yards per man per hour, but in the following distribution two yards per hour only has been allotted:—

Shelter Trench	...	...	2 yards per man per hour.
Abatis (Data)	...	...	10 men. 20 yards. 6 hours.
Stockade	...	...	8 6 6
Cutting Brushwood	...	...	96 sq. yds. per man, 6 hours.
Gun Pits	...	...	6 men, 1 hour.
Removing Fences	...	...	4 yards per day.

This latter calculation has been based on the extreme average of the fences being five feet in height and three feet in width.

Calculating for easy soil, this would give 10 feet as the amount of a man's task in length, but considering that the fences need not be razed completely to the ground level, four yards has been considered an easy task.

In distributing the working parties, it has been endeavoured to contrive that the tools in use, in village and wood, should be interchangeable, and that the tools used for felling in the wood one day should be available for cutting abatis for the village the next, and the same with the implements for digging.

TOOLS.

The tools available are held to be—

Shovels.	Picks.	Axes.	Bill Hooks.	Saws.	Crowbars.
500	300	125	370	25	20

WORKING PARTIES.

The battalions defending the Village and Wood are each required to furnish two working parties, to be employed as follows :—

FIRST DAY.

Wood.—Party No. I.

Tools.		
Bill Hooks.	Hand Axes.	Hand Saws.
350	125	25

550 men will be employed the first day making the required clearing.

This they will complete.

Village.—Party No. I.

Tools.		
Shovels.	Picks.	Bill Hooks.
230	120	20

350 men will be employed for two hours at making shelter trenches, improving fences, and walls.

Wood.—Party No. II.

These tools will then be handed over (as required) to 250 men of the battalion defending the wood, and these men will be employed for two hours in cutting the shelter trench and improving the front line of the wood.

Party No. II.—Village.

Shovels.	Picks.
270	180

The remainder of the available shovels and pickaxes, viz., 450, will be used by 450 men in removing fences. They will be able to remove in the day's work 1,800 yards of fence, viz., 1,200 on their own side and 600 yards between them and the village.

Wood.—Party No. II.

After cutting the shelter trench, the same party will be employed for two hours in improving the north boundary fence of the wood.

Party No. I.—Village.

Party No. I. will be employed for two hours in loopholing and placing the buildings in a state of defence. This will complete the first day; eight hundred men per battalion having only been employed, and part of those for only four hours. From the remainder the guards, cooks, orderlies, &c., are taken.

Engineer Company.

No great haste or skill being required in the work, the engineer company is chiefly employed in superintending.

SECOND DAY.

Village.

Six hours work for 300 men in making abatis, and six hours for 120 men in making stockades is required. As this only employs 420 men they are relieved after three hours work.

The tools used in felling the wood are available.

The two gun pits are dug by 12 men in one hour, and the demolition of buildings by gunpowder, &c., is entrusted to the engineer company. All required improvements are effected.

Wood.

Six hours work in removing fences is required for 250 men, the tools in use the day before being available. 375 men are employed; they are relieved after three hours work, and the remainder of the day is occupied in improving defences.

Distribution of the Defenders.

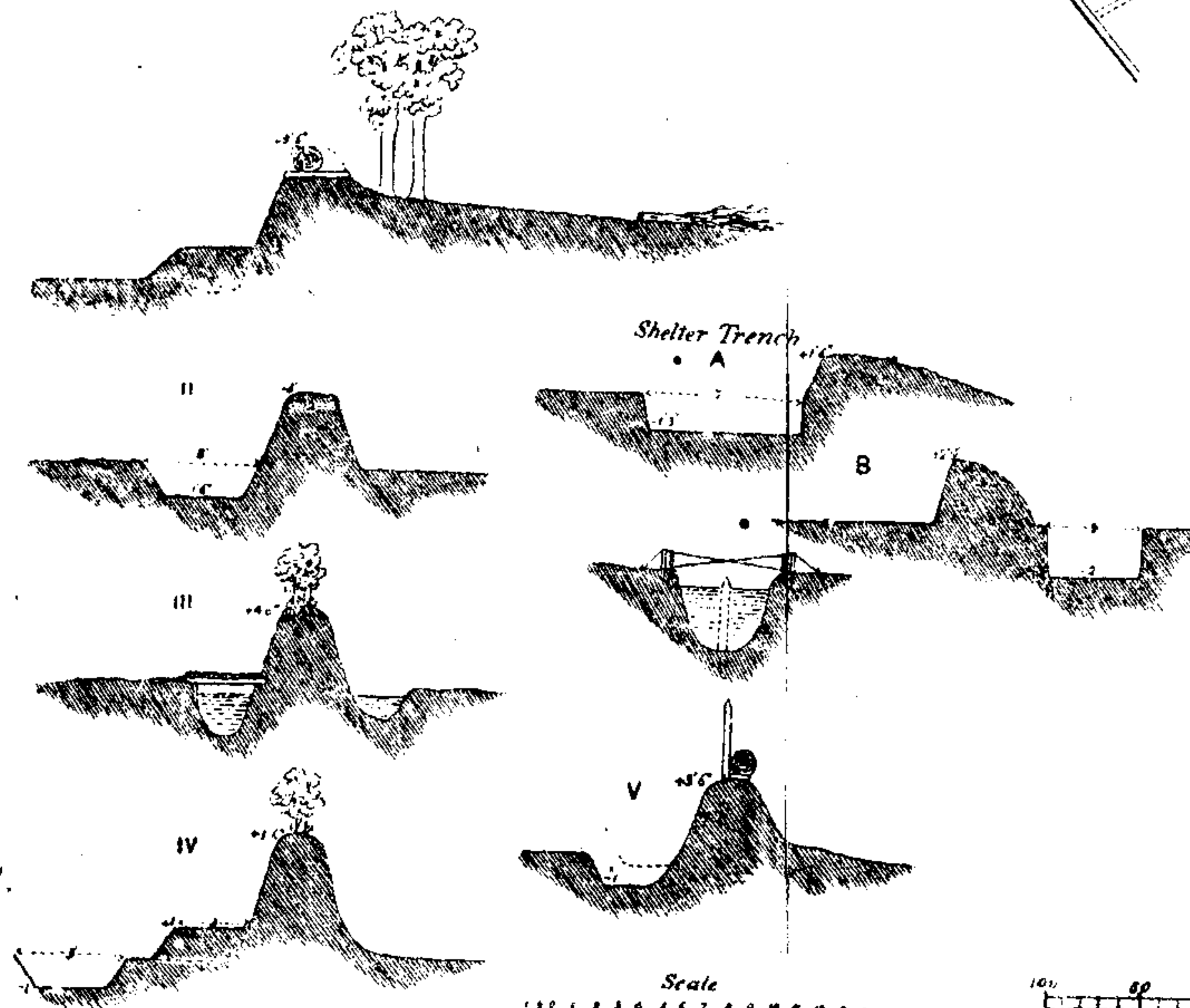
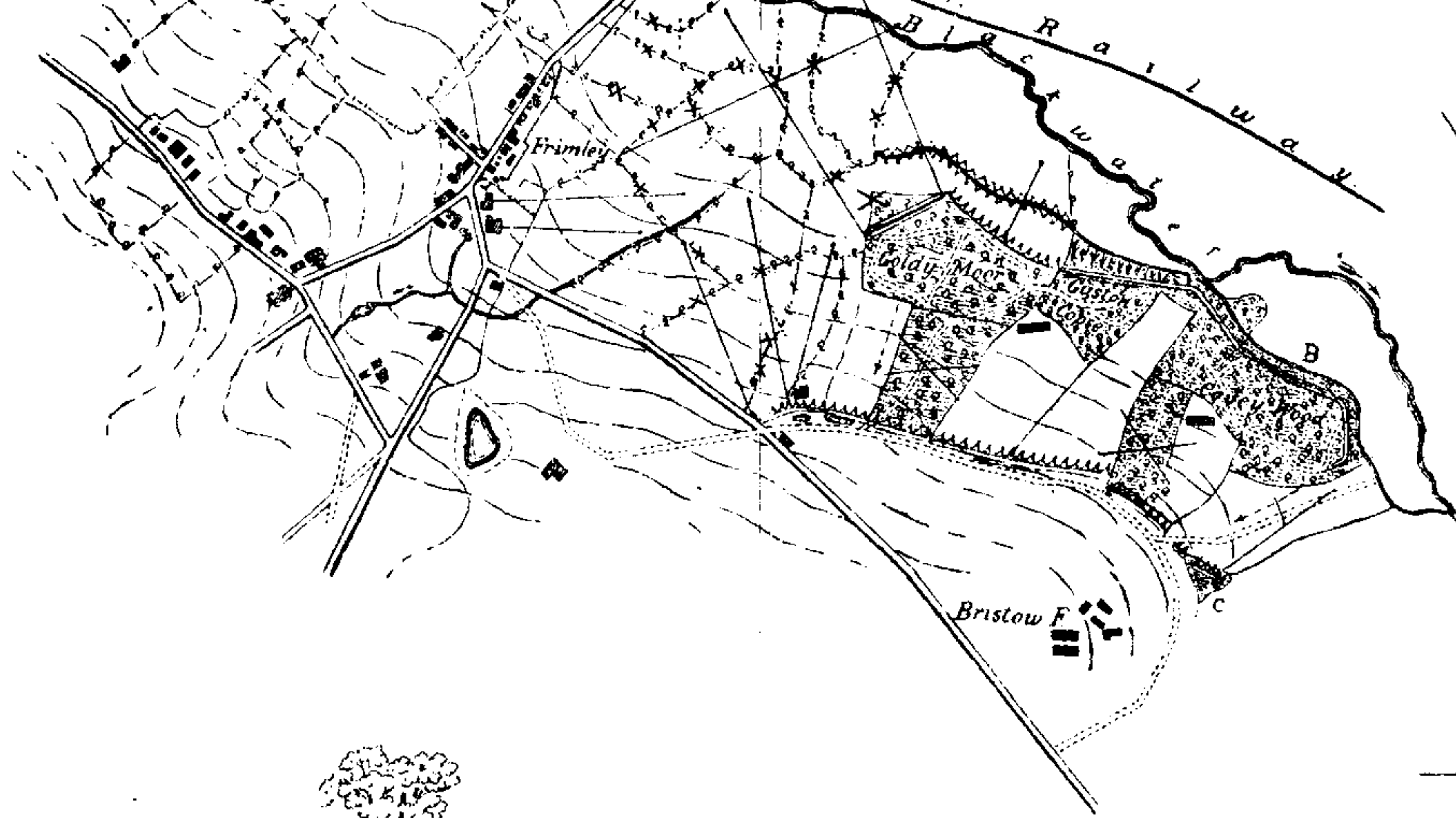
In considering this, the example given in "Home's Précis of Modern Tactics," * has been mainly followed, and the defence of the outer line (village) closely tallies, as far as numbers are concerned, with that example. It is considered that the outer line is weakly defended, but this distribution has been adopted because it readily adapts itself to the employment of the tactical units involved. In accordance with it, one half battalion is sent to defend the outer line, two companies being extended along it, and two companies being in support.

These companies are placed in as safe a position as possible.

As the attack develops itself, the supports are used to supply losses, and two companies, hitherto kept in a safe position at A A, are brought forward and placed to defend the second line. The defence of the buildings and walls on the right are entrusted to the right company, and that of the Church, Manor House, and connecting fence to the left company.

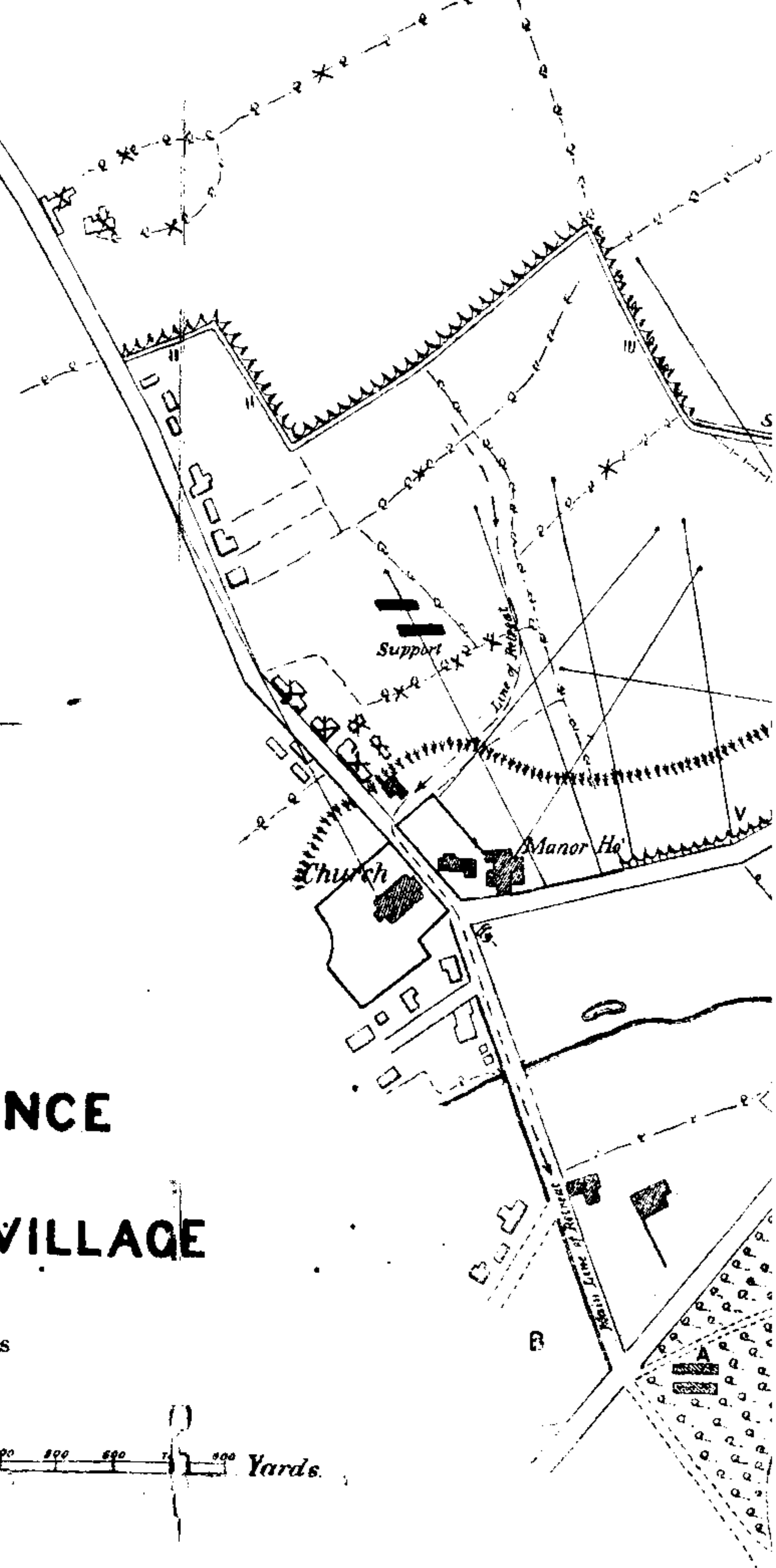
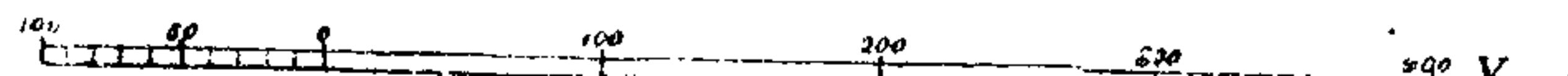
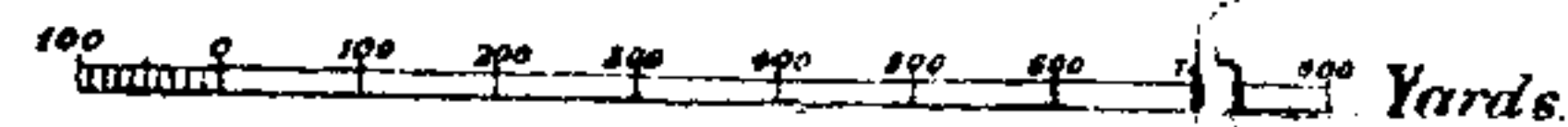
If the outer line is carried, the defenders retire along the lines indicated in Plan, thus clearing the front for the fire of the second line. When reformed, they will reinforce the latter. Should the second line be carried, the defenders will retire by the two roads indicated, the direction of which enables their concentration.

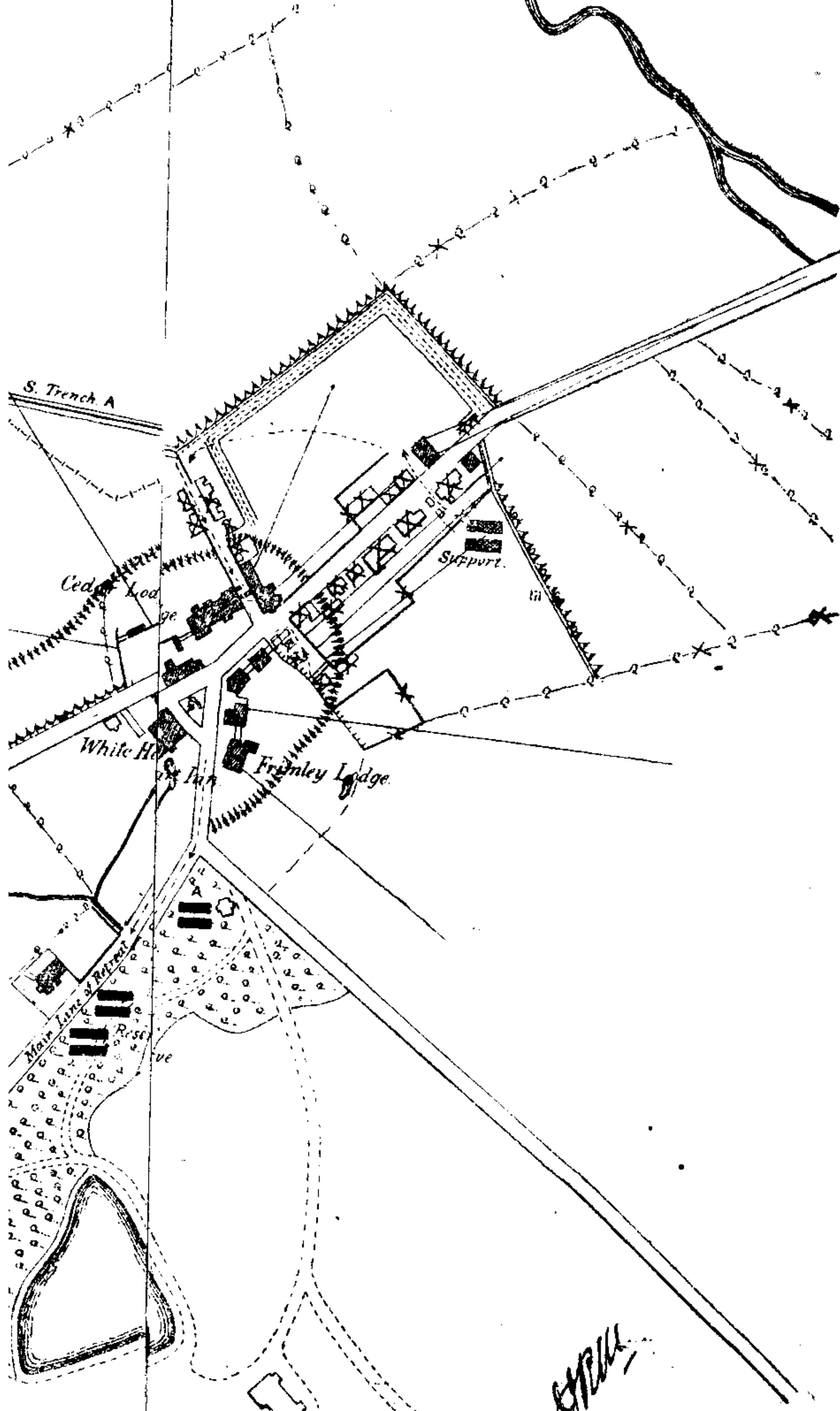
This concentration will be effected at B, covered by the two companies in reserve, and a counter-attack, aided by the general reserve battalion stationed at Frimley House, may then be made. The same disposition has been adopted for the defence of the wood.



DEFENCE OF FRIMLEY VILLAGE

Scales





CHAPTER XX.

CONVOYS.

PERHAPS no part of a soldier's work during a campaign of any duration is less genial than convoy duty : it is often dangerous, at all times tedious ; and few men during a war deserve better and fare worse than those whose lot it is to keep open the lines of communication.

Land Convoys

are of various descriptions and importance. The introduction of a convoy of ammunition or food into a beleaguered city may be covered by a series of movements ranking amongst the grand operations of war.

History records numerous instances where convoys of sick and wounded, or of women, children, and civilians, carrying with them every description of human wretchedness, have started forth from a partially invested and ill-provisioned town, only to perish miserably or be captured outside. The protection of such a caravan usually entails a serious military operation apart from the actual conduct of the convoy, which, if attacked, cannot be expected to offer any protracted resistance. *The ordinary convoys are those plying between a force in the field and its base.*

If the country remains openly hostile, and the communications are insecure, no precaution should be omitted to protect the waggons and animals from being looted or captured. With this view, an escort composed

of cavalry and infantry is usually provided, and the commander is expected to offer a determined resistance against a serious raid, and secure himself against marauders.

With regard to the conduct of convoys, a few rules have been generally accepted; but their application must vary with the country, the composition of the convoy, and the character and proximity of the enemy. No convoy, whether composed of waggons or pack-animals, or a combination of both, should exceed a mile in length on a road, allowing for the waggons to be stretched out in single file. If there are pack-animals, or beasts driven on the hoof (bullocks, sheep, &c.), they should head the convoy, and have the benefit of the best of the road in wet or dry weather.

Escorts usually consist of one-third cavalry and two-thirds infantry. It is seldom that a convoy travelling alone, with merely its immediate escort, will be expected to repel an attack of the three arms combined; thus guns have rarely accompanied a convoy, although in future machine guns will doubtless be added.

A long line of waggons or pack-animals is an unwieldy and extremely vulnerable array, and travels slowly in proportion as its length increases. For every reason, therefore, including speed (always an important consideration), whenever the country admits of their moving on a more extended front, the waggons, &c., should be closed up, and the length of the column reduced. A certain percentage of spare waggons, and animals should always be provided in case of break-downs. The first object of the commander is to get to his destination as quickly as possible, and he should endeavour to get on to his new camping-ground early, in order to water his cattle, and park before dark. The loading

and unloading of pack-animals requires time, and should be carefully superintended, or sore backs will soon appear amongst them.

In disposing of his escort a commander will recognize the extreme importance of obtaining the earliest possible information of an intended attack; and for this reason the cavalry should reconnoitre widely to the front and flanks, the infantry being distributed in front and in rear of the convoy, with a strong reserve placed in a central position ready to be moved rapidly in any direction.

The tactical arrangements should be such that in case of attack the engagement shall take place at some distance from the convoy. If the enemy is in the vicinity, and the country is broken, the main body of the escort should go from one defile or hill to the next; and the convoy should only follow when the ground, particularly on the flanks, has been searched.

In case of attack, if the convoy cannot get away in time, it must be parked, the cavalry escort attacking the enemy, whilst the infantry concentrates for the defence of the convoy.

Defiles,

at all times dangerous situations for troops on the march, are especially awkward for convoys. In the event of a defile being reached by a convoy before the advanced cavalry have had time to reconnoitre satisfactorily on the flanks and beyond it, with a view to saving as much time as possible, the leading half of the convoy should be halted and parked at the entrance, while the rear half keeps the road and closes up. By the time the second half has reached the passage,

the required information may have been obtained, in which case it can push through, preceded and flanked, if possible, by a portion of infantry, which, on reaching the far side, takes up a position to guard the entrance. The formation of the different bodies of troops and the manner of parking the convoy under these circumstances are shown on Plate XXXVI., Fig. 1.

On debouching on the far side the leading portion of the convoy shall halt and park, while the remainder passes through and regains its position at the head, when the procession proceeds in its original order.

This arrangement, besides saving time, has the advantage of keeping the bulk of the escort concentrated and close at hand, to protect the passage of the waggons, etc. (*Vide* Plate XXXVI., Fig. 1.

There only remains to describe the different methods of parking.

Parking Cattle.

Soldiers, as a rule, are considerate to dumb animals and soon get to understand their ways.

Cattle, whether sheep or oxen, after a long tramp will seldom stray far; provided the last-mentioned have been watered, a stray beast will usually find its companions if left alone.

If unmolested and left alone cattle, as a rule, quietly settle down for the night.

Horses, ponies, and mules should be piqueted in rows, facing each other, with plenty of room to walk between for feeding purposes.

Camels rarely roam at night, and, when once down, never stir till morning.

Animals of all descriptions, like men, are more easily led than driven.

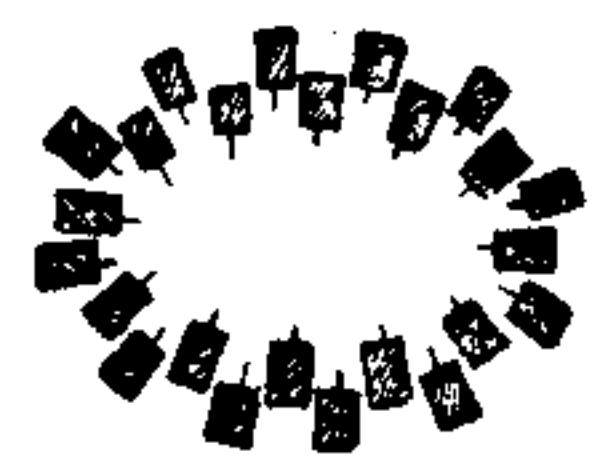
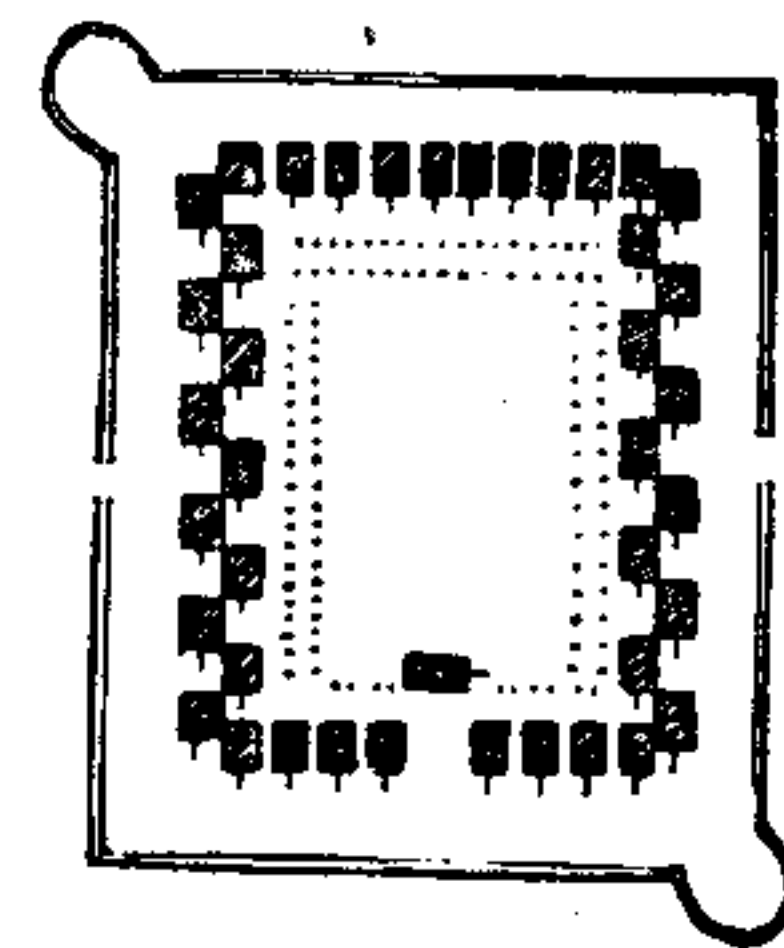
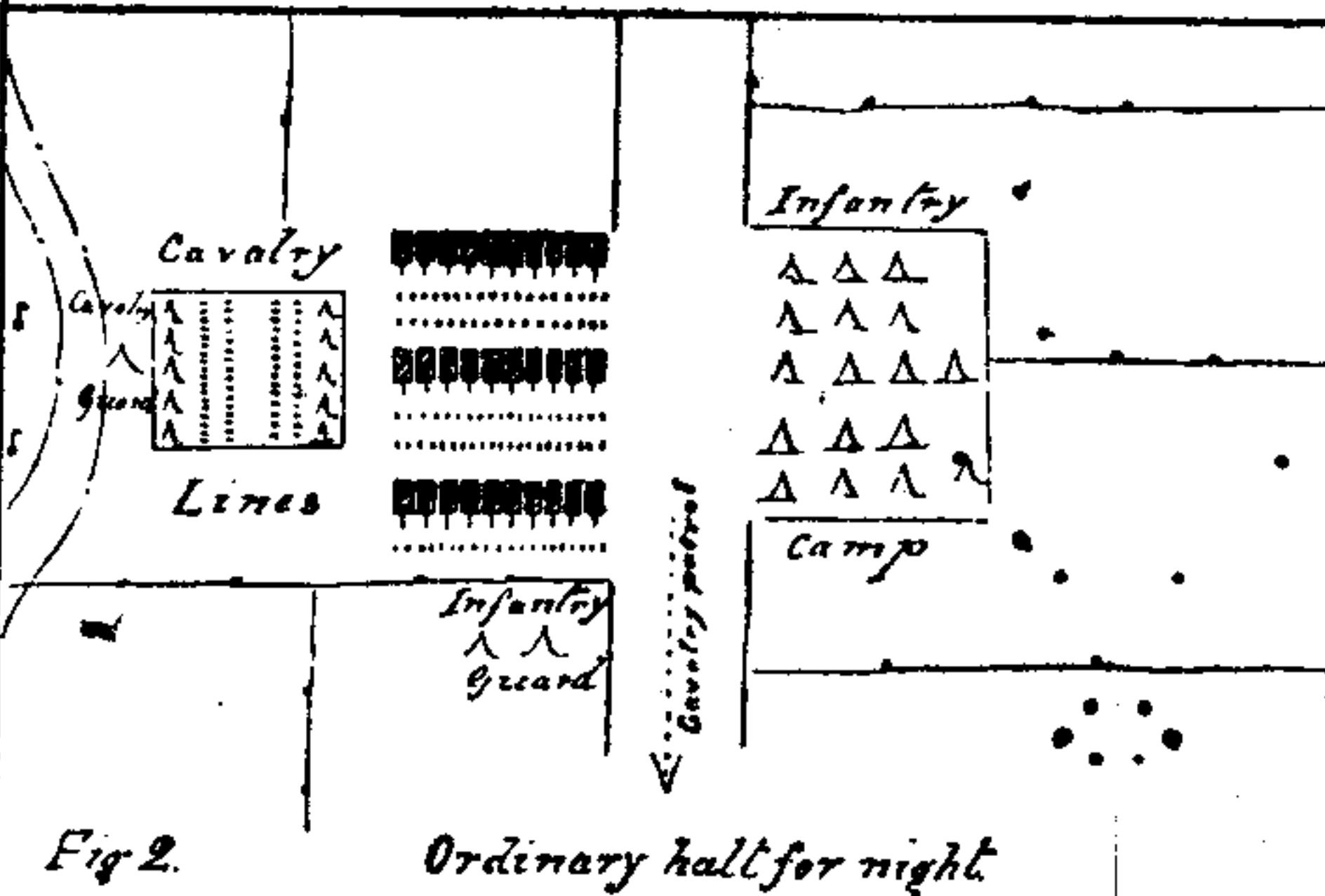
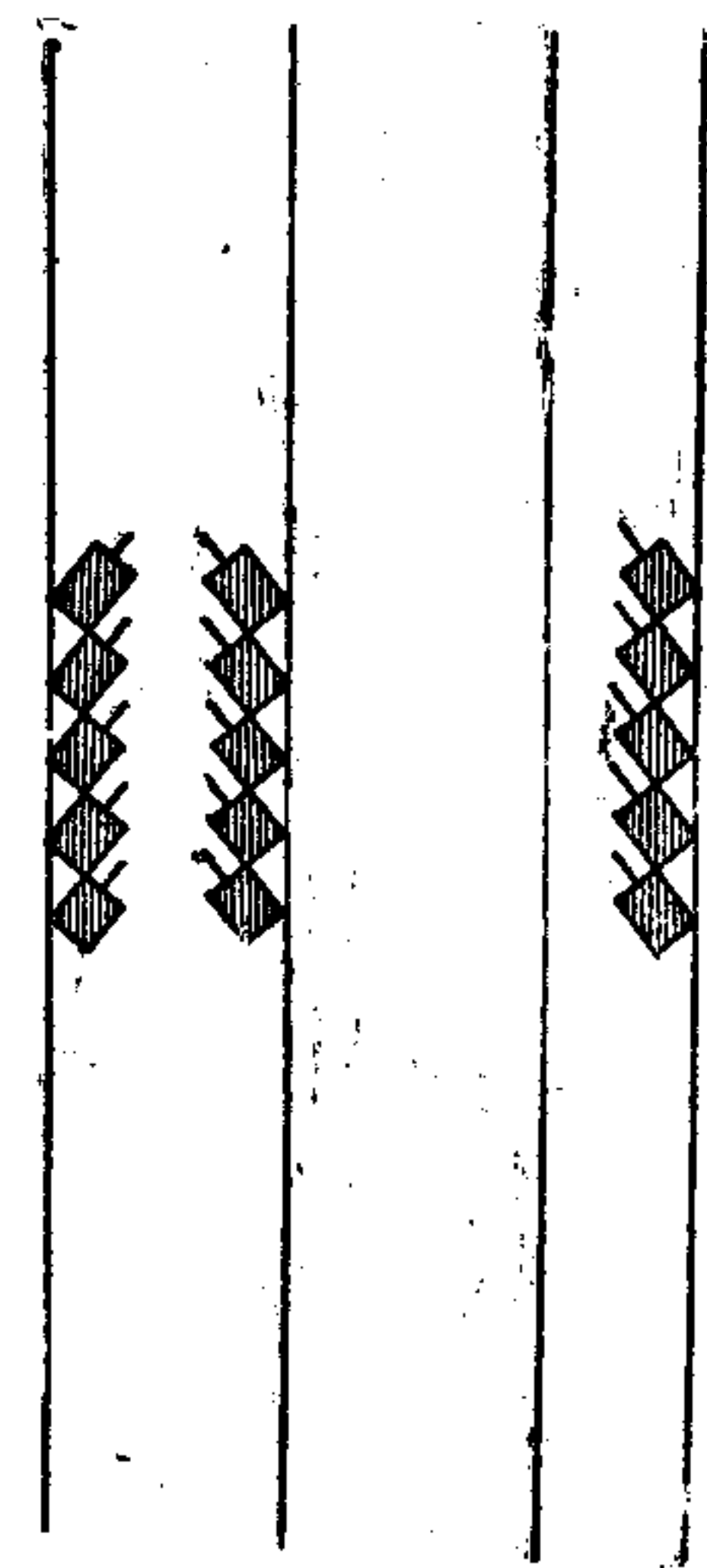
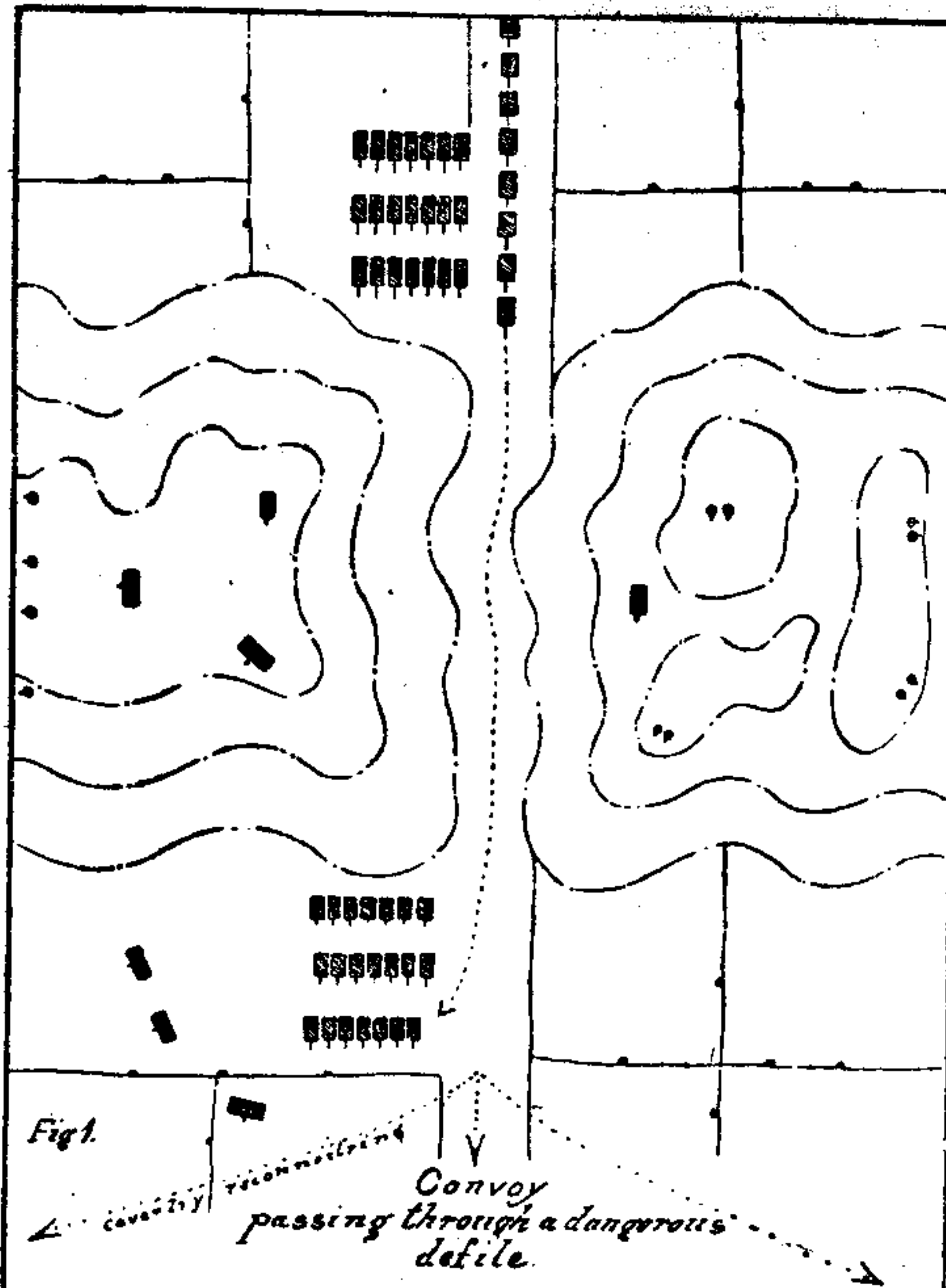
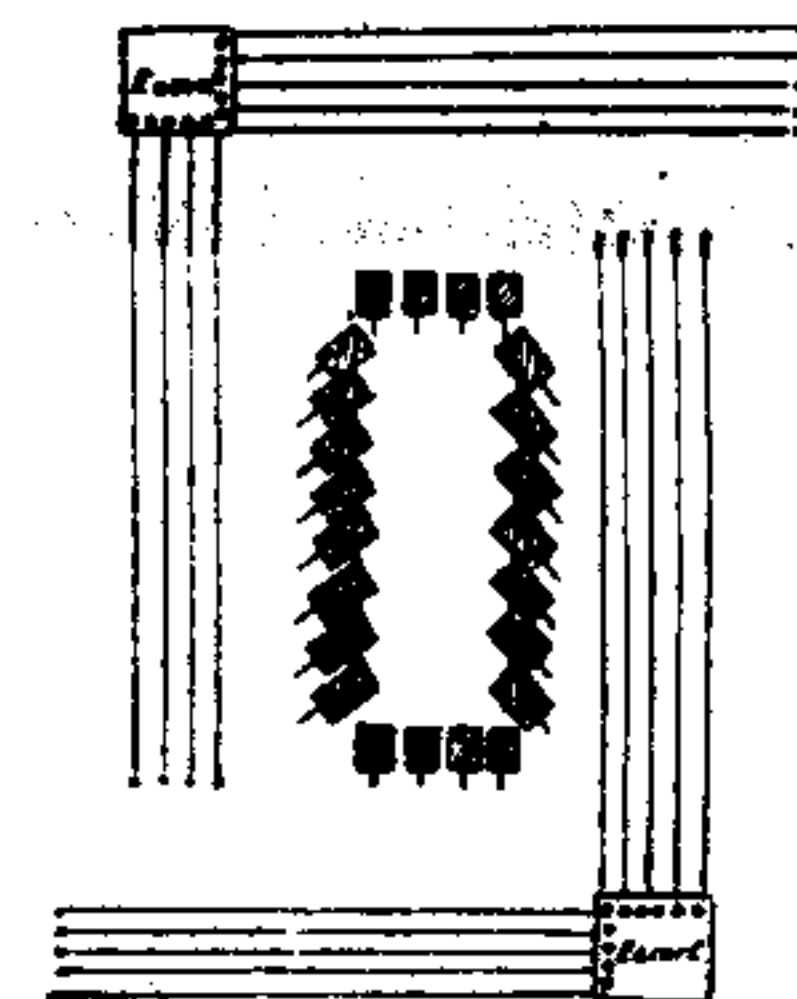
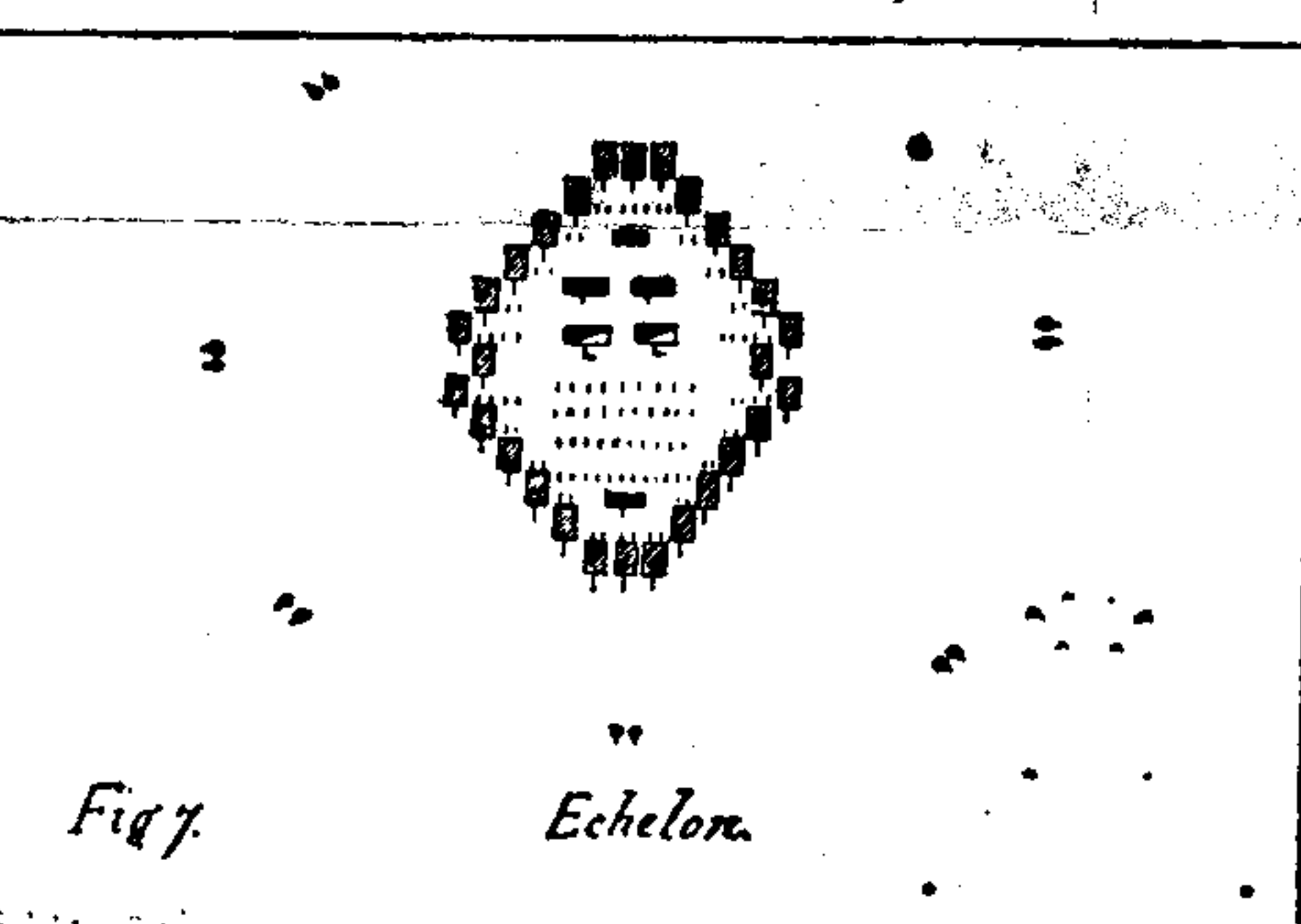


Fig 5.

Fig 6.



Elephants are peculiar, and will only obey their own keepers.

Five Methods of Parking Waggon.

1. At ordinary halts when no attacks are contemplated (*Vide* Plate XXXVI., Fig. 2).

2. When a sudden attack is imminent on the march, and there is not time to make a regular park (*Vide* Plate XXXVI., Fig. 3).

3. Parking in an oval or circle, axle to axle (*Vide* Plate XXXVI., Fig. 4).

4. Parking end-on in square formations; advantage, more interior space than in No. 3 (*Vide* Plate XXXVI., Fig. 5).

5. Parking in echelon formations (*Vide* Plate XXXVI., Fig. 7).

If a convoy consists of explosives, the waggon should be parked separately, and the escort divided and posted so as to afford flank protection (*Vide* Plate XXXVI., Fig. 6).

Convoys by Rail.

A convoy by rail is simply a train, and embarkation and disembarkation is the chief difficulty, for which suitable platforms must be provided.

A pilot engine, armour-plated, should be provided, and the escort distributed between head, tail, and centre of train.

By Water.

A convoy by water is conducted on the same principles as on land.

Cavalry must be kept well in advance and on the exposed flank. Infantry in separate boats move at head.

centre, and tail, and are only landed when an ambush is possible, or an enemy reported.

If attack imminent, the infantry must be landed, and their boats kept close at hand for retiring to.

The loaded boats meanwhile should be moving along the opposite side, with arrangements complete for sinking them if in immediate danger of being captured.

Escorts of prisoners should always be strong enough not only to guard against surprise but to overawe the convoy itself and suppress mutiny. Their strength will, of course, vary with the character of the enemy and the probability of having to fight. From 100 to 200 infantry and 25 cavalry should generally be sufficient escort to every 1,000 prisoners, with machine guns if necessary.

The best time to select to surprise and attack a convoy is when it is moving through a defile. An attacking force should be composed chiefly of cavalry, with infantry and artillery according to circumstances. The longer the convoy the more disseminated its escort and the easier it is to attack in detail.

When caught on the march a convoy cannot be expected to offer much resistance, but if it gets warning of an impending attack and has time to park it can often beat off a superior force that is not supported by artillery.

If seriously attacked and the chance of beating off the assailants is hopeless, every effort should be made to get away with the most valuable part of the convoy. Failing this the horses should be taken off and the convoy rendered as valueless as time permits.

Example.—From the Militia Competitive Examination, March, 1893. (Plate XXXVII.)

Question.—“A convoy consisting of 100 waggons, with an escort of 2 companies infantry and 20 mounted

men, is moving through C with a view to reaching Purbrook. Hostile cavalry scouts are reported to have been seen about G coming from eastwards. Describe the dispositions the commander of the escort should make to ensure its security.

“The reasons for the arrangements are to be stated.”

Answer.—If Granston Down is suitable country for heavy waggons to pass over the commander of the convoy would, of course, avoid entering such a dangerous defile if there was a possibility of being seriously attacked while in it.

He would reinforce his flank guard to the strength of a company and order it to hold the south-east edge of Oak Wood and the head of Compton Valley; at the same time he would despatch a mounted orderly to Purbrook to warn the commander of the garrison there that he was coming round with his convoy *viâ* Grant's Farm and Allington, requesting him at the same time to send out a force of infantry to hold Marr Hill and co-operate with the flank guard of the convoy.

As the enemy is not reported in superior force he would not park the convoy; in fact, he would not halt it until the head was about 1,000 yards south of Manse Farm. As soon as he received intelligence that the enemy were not in force he would push across the open to Grant's Farm, keeping one section of infantry in front of his convoy and one section on his left flank, with skirmishers in Beech Copse. He would cross the Down in open column of waggons, each row being 20 waggons, and would thus in case of attack be able to park in a few minutes.

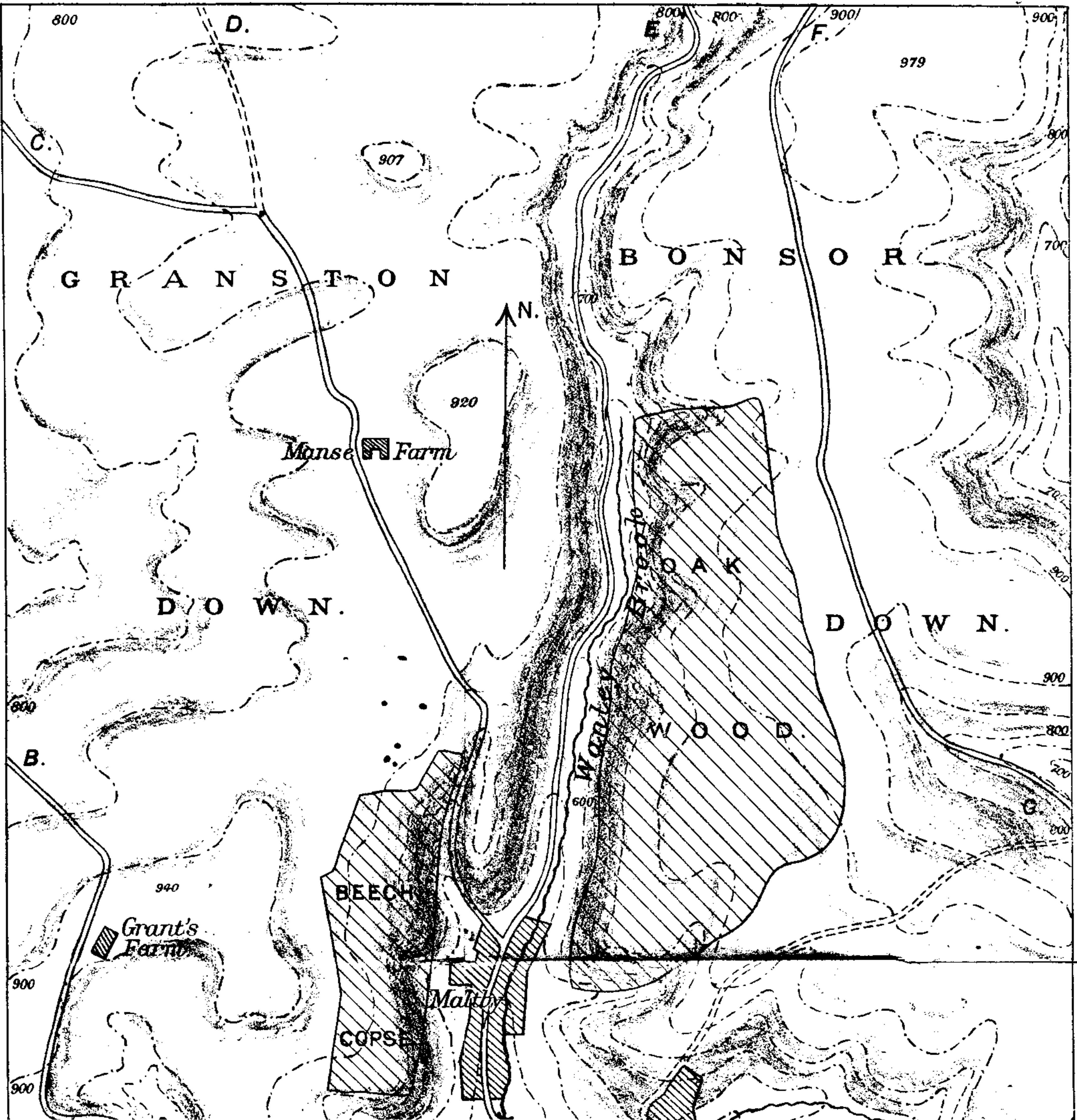
If, as is most probable, the waggons could not leave the road, the commander would take the same precautions regarding his exposed flank as above described,

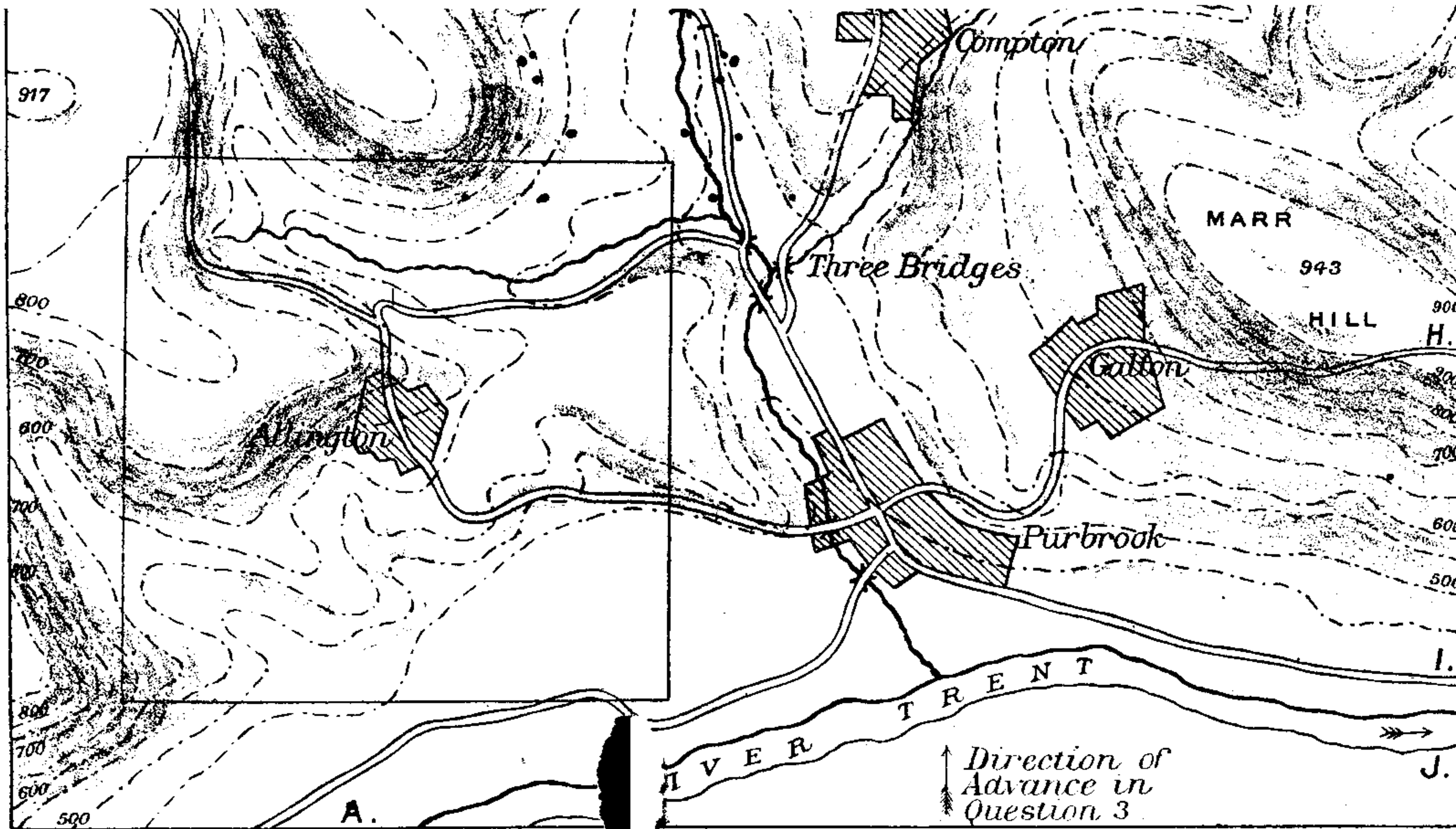
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TACTICS.

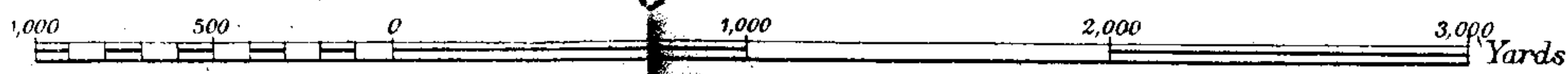
SECOND PAPER.

Plate XXVII





Scale 3 inches to 1 mile.



Contours at 50 feet interval.

and push forward his advanced guard to hold the heights between Birch Copse and Wanley Ravine. If he deemed it necessary to halt on the near side (the Manse Farm side) of the defile while reconnoitring was being carried out beyond, the first half of the convoy might be parked, and the second half pushed through as it arrives, "parking" also, on the other side. The first half of the convoy passing the defile in turn would resume its position at the head of the march. If the convoy passes through without halting, it should move rapidly and get out of the defile as quickly as possible.

A few skirmishers would be sent into Beech Copse. If the convoy passes through without halting, it should, if an attack is possible, be "parked" beyond as it issues, but not otherwise. The advanced guard would, of course, in any case precede the convoy and hold Compton Village. The flank guard from Oak Wood would relieve the advanced guard at Compton later on. It is assumed that Marr Hill is held by a detachment sent out from Purbrook.

The reasons for the precautions on the exposed flank are obvious, the greater portion of the escort being moved forward into a covering position while the convoy continues its march.

The advantage of parking at the entrance and exit of the defile is, that it enables the rest of the escort to be concentrated in the vicinity of the defile during the whole of the passage.

CHAPTER XXI.

NIGHT OPERATIONS.

HISTORY affords numerous instances of *night* marches and daybreak attacks, but very few of successful *night attacks*.

The night attack by the Russians on the English at Inkerman was repulsed.* The night attack at 2 a.m. by the French on a Russian battery, February 23, 1855, failed.

In 1758 the Austrians, under Daun, surprised Frederick at Hochkirch, by closing round him during the night, and in 1814 Marmont made a most successful night attack on the Russians at Étoges. The following extract from Marshal Marmont's memoirs furnishes a valuable lesson for the guidance of similar undertakings:—

“Napoleon had placed Grouchy's cavalry under my orders, two thousand five hundred strong; I had added to it all I had in readiness of my own cavalry. At the same time, I ordered him to make a circuit by the plain to our left, to anticipate the enemy at his point of retreat, and to place himself in order of battle behind him astride of the road of Chaumpaubert and Étoges. This movement was carried out, though somewhat tardily. Ourousoff's division received the charges directed against it with courage, and continued its march and forced its way through in order to get to Étoges, where it halted. This last action took place at

sundown. When we arrived at Chaumpeaubert, the Emperor sent me an order to halt there; but nothing could have been worse conceived. We could not leave the enemy at such a short distance from us. Besides, Chaumpeaubert is not a good defensive position, and that of Étoges, a bad one for the enemy, was an excellent one for us. I was evidently to be abandoned here with a handful of troops, and it was wise to clear it of the enemy before weakening myself. I decided therefore to march on Étoges and make a night attack with a view to taking it by surprise. Similar attempts after a first success ought to be made oftener in warfare; they would always be successful. But my troops having fought alone all day, all my men had been engaged; I had not three hundred men together. I asked Marshal Ney to lend me one of his regiments of the Spanish division, commanded by General Leval, who was following me. He refused my request. Feeling the urgency of the case, I gave a direct order to a regiment of this division of eight or nine hundred men to follow me. I placed it in column on the road, and ordered it to protect itself by fifty men skirmishing a hundred paces only to the right and left, to march in this formation without noise, not to fire, and to throw themselves when they got within range, on Étoges without replying to the enemy's fire. As to myself, I marched in person at the tail of this column. What I had foreseen occurred. The enemy, having established themselves for the night, were not on their guard. Surprised, they offered no resistance, and fled. More than three thousand prisoners were made; amongst them was Prince Ourousoff commanding the division."

The advantages of a night attack are:—

1. Saving of time; all preliminary stages of a

2. Diminution of loss ; assailants' movements unseen.

The disadvantages of a night attack are :—

1. All those entailed by a night march.
2. Concentrating troops in the dark is a difficult and dangerous operation.
3. The rate of marching is so slow as to be computed at one mile per hour at night for a battalion moving over a roadless country.

The favourable conditions for a night attack are :—

1. When the opponents are *very inferior in discipline, and their outposts are known to be slack.*
2. When there happens to be good cover to hide the assailants' movements.

The unfavourable conditions for a night attack are :—

Ignorance of the ground and positions held by the enemy.

The other conditions both for and against are common to all attacks, only intensified.

Night Marches.

“Night marches are usually undertaken to forestall the enemy, to gain time either in an advance or a retreat, or to move troops into position for an attack under cover of darkness.

“Before undertaking a night march, the roads or route should be reconnoitred, and any points noted where checks are likely to occur.

“If the march is to take place on roads or tracks, the general compass direction should be known. All turnings that are not to be used should be blocked, or, if this is

not possible, sentries must be posted at these points. When

no tracks exist, the route must be fixed by compass bearings, the points where any change of direction is necessary to be carefully noted, and the distances between clearly defined and easily recognisable points measured and timed.

“Officers selected to lead columns should, if possible, visit, just before dark at any rate, a portion of the ground to be passed over, returning after dark.

“The officer leading the advance must be sufficiently far to the front to prevent the needle being affected by the rifles. Connection should be kept up by means of men, extended at several paces distance. This plan has the further advantage of giving time for verifying the direction without checking the troops. An officer should invariably be detailed to check the distance marched.

“Features of the ground that show against the skyline, and that have been previously observed and fixed, or the moon or stars if in the required direction, may be used as temporary aids, the bearing being verified from time to time.

“To secure secrecy, orders for a night march should be given out as late as possible.

“Cavalry patrols should precede the columns, *or cyclists if the roads are good*; the remainder of the cavalry and artillery should march at its least exposed end. The covering troops should not be far from the main body, and constant communication must be kept up between all portions of the main column.

“Absolute silence must be maintained, and ~~no~~ smoking or lights allowed. Rifles should be carried at the slope, and are on no account to be loaded.

“An orderly officer should be detailed for the brigadier from each unit in the brigade; the brigadier should have

“Halts should be at stated hours and for a definite time; during halts mounted troops should stand to their horses, the remainder should lie down, but not leave the road.

“It is not safe to calculate on a force of 1,000 men marching more than two miles an hour on roads, or one mile an hour over open country.

“Night marches should, as a rule, be so timed that attacks may take place at daybreak; it may, however, be necessary to attack at night. Much damage may be done at night by small bodies if boldly handled; firing during such attacks is desirable, the object being to cause annoyance and create panic.” *

Orders.

1. *Object.* 2. *General idea.* 3. Compass or other clear direction, with limits within which attacking columns may advance previous to final advance to assault. 4. Distinctive marks, and watch-word. 5. Halts named for certain hours, not places, and men directed to lie down during these halts. 6. Attitude to be assumed in case of sudden attack by enemy, either in front or on flanks. 7. Instructions for the assault, and the signal for its being delivered. 8. The place of the commander on the march and prior to the assault.

All these orders, and any others that peculiar circumstances suggest, should be clearly explained to everyone before the troops are marched off. No loading without orders, no stopping to help wounded men, no halting till the position is reached. When

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* Infantry Drill, 1896.

checked by obstacles, the men not employed in helping to remove them to lie down. Each section must look to its own commander to lead it; but if there is the least sign of hesitation, officers and non-commissioned officers must at once lead forward any men near them with the bayonet, until the enemy is driven out of the works.

Formation of a Column.

Advanced guard preceded by a "point" 100 to 200 yards. Pioneers with advanced guard. Attacking columns at from 50 to 100 yards from advanced guard, in column of companies, half-companies, sections of fours, with three paces between ranks or fours, at half-open files.

Support at from 200 to 400 yards in rear of attacking column.

Gun detachments with supports ready to serve enemy's guns when captured, or spike them if necessary. Engineers also with support.

Reserve half a mile in rear, and behind it the artillery, the reserve ammunition, entrenching tools and the cavalry.

When closing on enemy's position, all the above distances may be diminished to one-half.

Water bottles should be filled, great coats taken.

Frequent and short halts made.

Cavalry and horse artillery must not run the risk of coming in contact with enemy until daybreak.

If attack has succeeded, they should endeavour to get round the flanks of retreating enemy.

If attack has failed, must protect retreating infantry by falling on the flanks of pursuers.

The Assault.

Officers must lead.

Supports within 300 yards of assaulting columns ready to move forward in case of success, or to cover retreat if assaulting column is driven back.

Troops repulsed should endeavour to fall back clear of flanks of supports.

Reserve will follow supports at a distance of about half a mile, and await orders by signal or otherwise.

The reserve occupies a captured position, the attacking column and support taking up the pursuit.

Cavalry and mounted infantry pushing up parallel roads to the enemy's line of retreat, and keeping clear of all encounters with him till daybreak.

Pursuits should always be vigorous.

Troops falling back must be rallied by the commanders of the support or the reserve, as may be ordered by the officer in command.

It will thus be seen that none but highly disciplined troops should risk an undertaking fraught with so much danger as that inseparable from a night attack, although in future night attacks may have to be resorted to as the only means of approaching a strongly defended position.

There are two classes of night attacks—those undertaken with the object of taking the enemy's position, and those that are only intended to harass and disturb him. The Drill Book says that great annoyance may be caused by minor attacks carried out by one or two companies.

When carrying out an attack of this kind a company commander would take every preliminary precaution as for a large attack, in order to ensure that the right direction will be kept and secrecy maintained.

He would march his company preceded by point and

advanced party until he arrived at the place of rendezvous. He would then extend it into sections at 15 to 20 yards interval, with connecting files between.

Having advanced in this formation as near to the enemy as he can get, he would direct the sections to fire volleys and the connecting files to open magazine fire, his object being to make the enemy suppose the attack to be in force. Having accomplished his mission, *i.e.*, thoroughly disturbed the enemy, he would order the cease fire, and quietly withdraw his men.

The Defence.

Vigilant and well trained troops, prepared to fight at close quarters, ought not to fear a night attack. On calm nights the movements of troops can be heard a long way off. Unless expressly ordered to make a stand, outposts, after giving warning of the enemy's approach, should fall back as noiselessly as possible. Telephonic communication should be established between outposts and the main body they are covering. When an enemy approaches a line of obstacles at night, fire or light-balls should be thrown behind him. The artillery will open fire with canister, and the machine guns will fire, and the infantry deliver volleys fired low, and if the enemy is not repulsed, the defenders should continue fighting till daybreak if possible.

(When answering this question, the railroads in Plate XXXVIII. to which it refers are to be assumed to be ordinary roads.)

Example.—A flying column of British troops at war-strength for foreign service, consisting of—

- 1 Battalion of Infantry,
- 2 Squadrons of Cavalry,
- 1 Battery of Field Artillery—

is on the march from the south to Bidford at 5 p.m. on the 1st June, 1888. Its commander is informed by the commander of his advanced guard that on his arrival at Bidford he has been informed by trustworthy spies that an armed force of Afghans, estimated to number about 4,000, has arrived at Ingleby after a long march. The enemy has no artillery, and has thrown out no outposts. Describe the dispositions the commander of the flying column should make to ensure the success of an attack on Ingleby at daybreak, 4 a.m. the next morning.

The commander of the force is in possession of a map of the country (*Vide* Plate XXXVIII.).

Answer.

On receipt of the intelligence the commander of the flying column, who is with the main guard of his advanced guard, sends instructions to his advanced guard commander to halt and establish standing cavalry patrols to observe Great Wood and the Carton—Trentham road and valley, with strict orders not to expose a man to view on the crest line of Hill 790.

The remainder of the advanced guard, consisting of the rest of the squadron and a company of infantry, to be kept in support on the south side of hill 790. The cavalry, with the exception of three standing patrols, is withdrawn to Bidford half an hour later.

The main body is halted about one mile south of Bidford, and the inhabitants, who are friendly, are warned not to leave the village, sentries being posted to prevent their doing so.

General Idea

as explained to the commanding officers of the different arms, and their senior officers and adjutants, by the

I intend to surprise and attack the enemy at Ingleby at daybreak.

The presence of the ravine to the north-east of Ingleby necessitates dividing my cavalry and guns, as the enemy will probably attempt to escape down the ravine; on the other hand, should he attempt to retire in a north-westerly direction I must be prepared to shell him till he gets out of range and follow him up.

I shall attack with two columns. The left column, under command of Major W., 40th Hussars, composed of $1\frac{1}{2}$ squadron 40th Hussars and three guns R.A., will rendezvous at Moy Farm at 3.30 a.m., and at dawn will move forward as quietly as possible by the nearest route and bring the guns into action against Ingleby from the south spur of hill 783 as soon as it is light enough to range.

The right column, under command of Lieut.-Colonel G., 30th Fusiliers, composed of 7 companies 30th Fusiliers, $\frac{1}{2}$ squadron 40th Hussars, and three guns R.A., will rendezvous at the point x on road east of Great Wood at 3.45 a.m., and there wait in profound silence for the signal for the infantry to attack, which will be the guns opening fire on Ingleby from hill 783. The half-battery of artillery and $\frac{1}{2}$ squadron of cavalry marching in rear of this column will advance at daybreak to the point B and watch the ravine, coming into action as occasion offers, but taking care not to impede the infantry during the attack.

The artillery will support the attack from both flanks as long as possible, and then advance if necessary to shell the retreating enemy. The cavalry on both flanks will be held back until the enemy is defeated and put to flight, when it will pursue with the utmost vigour for 10 miles if the country admits, and prevent the enemy rallying.

In the event of the attack being repulsed, the infantry will retire through Great Wood covered by the artillery and cavalry on both flanks, and by a company of infantry held in reserve on the right flank, which will afterwards retire under cover of the cavalry.

This event is hardly likely to happen, but if it should the rallying position for the whole force will be hill 790.

The infantry attack will be delivered in three lines, 2 companies in first line in column of sections at deploying interval, 2 companies in second line in the same formation, and 2 companies in third line in column of half companies. The intervals between the lines will be 400 yards to start with. One company will be in reserve under the orders of the officer commanding the force.

Officers commanding columns will make all arrangements necessary for the disposition of their troops on the march in accordance with the regulations, and will explain the general idea to their officers and instruct them to explain the gist of it to their men before they leave the places of assembly.

Commanding officers will enforce absolute silence on the march and at the rendezvous. Reliable guides will be furnished to lead each column, and as the enemy is so near there must be no attempt to reconnoitre during daylight for fear of disturbing him.

Officers selected to lead the columns and take charge of the guides are recommended to acquaint themselves with the roads as far as the places of rendezvous after it is dark. These reconnaissances must not be pushed beyond the places of rendezvous. As the roads are good and the guides are reliable, and as the attack will not be delivered till daybreak, the compass-bearing need not be taken, and distinctive marks are not necessary.

The right column will throw forward a few carefully

selected scouts, under an experienced officer, into Great Wood on its left flank to guard against surprise.

Should an impending counter-attack from the wood be reported, the infantry will at once be formed to receive it in line, facing west, with the flanks thrown back, and if time permits will be drawn back a couple of hundred yards from the road, and word will be sent back to the cavalry and artillery.

The countersign is "Lucknow."

Detailed orders will be issued at 8 p.m. to the adjutants of the different corps, who will report themselves to the brigade-major and take them down in writing.

Special instructions for the rank and file will be read out to them at the places of assembly.

The cavalry will take a day's rations for the men and a feed of corn for the horses. Filled water-bottles will be taken by all the troops and 150 rounds per rifle issued to the infantry before starting. No rifles will be loaded without orders from the officers commanding units.

I shall march at the head of the main infantry column of attack, and my place immediately prior to the attack will be on the right flank near the point B, with the company of infantry under my immediate orders in reserve.

There will be no bugle-sounds and no orders delivered above a whisper.

Do not let it be known in camp before the orders are issued that there is going to be a night attack, and do not let any men leave the camp under any pretence. Sentries will be posted round the camp.

The ammunition-waggon will follow the reserve. The mules will follow in rear of the support.

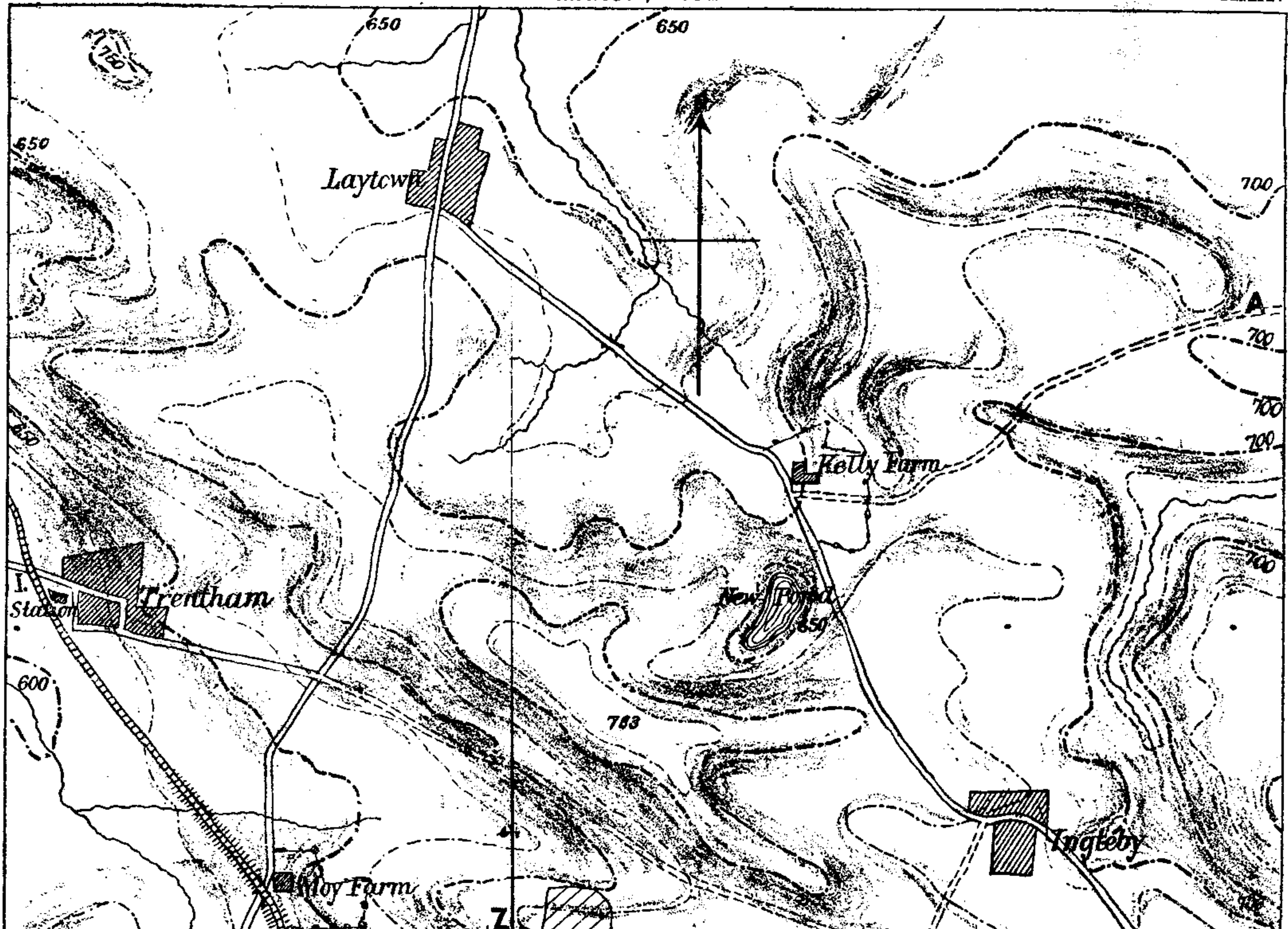
The ambulance will follow the columns and come up after daybreak.

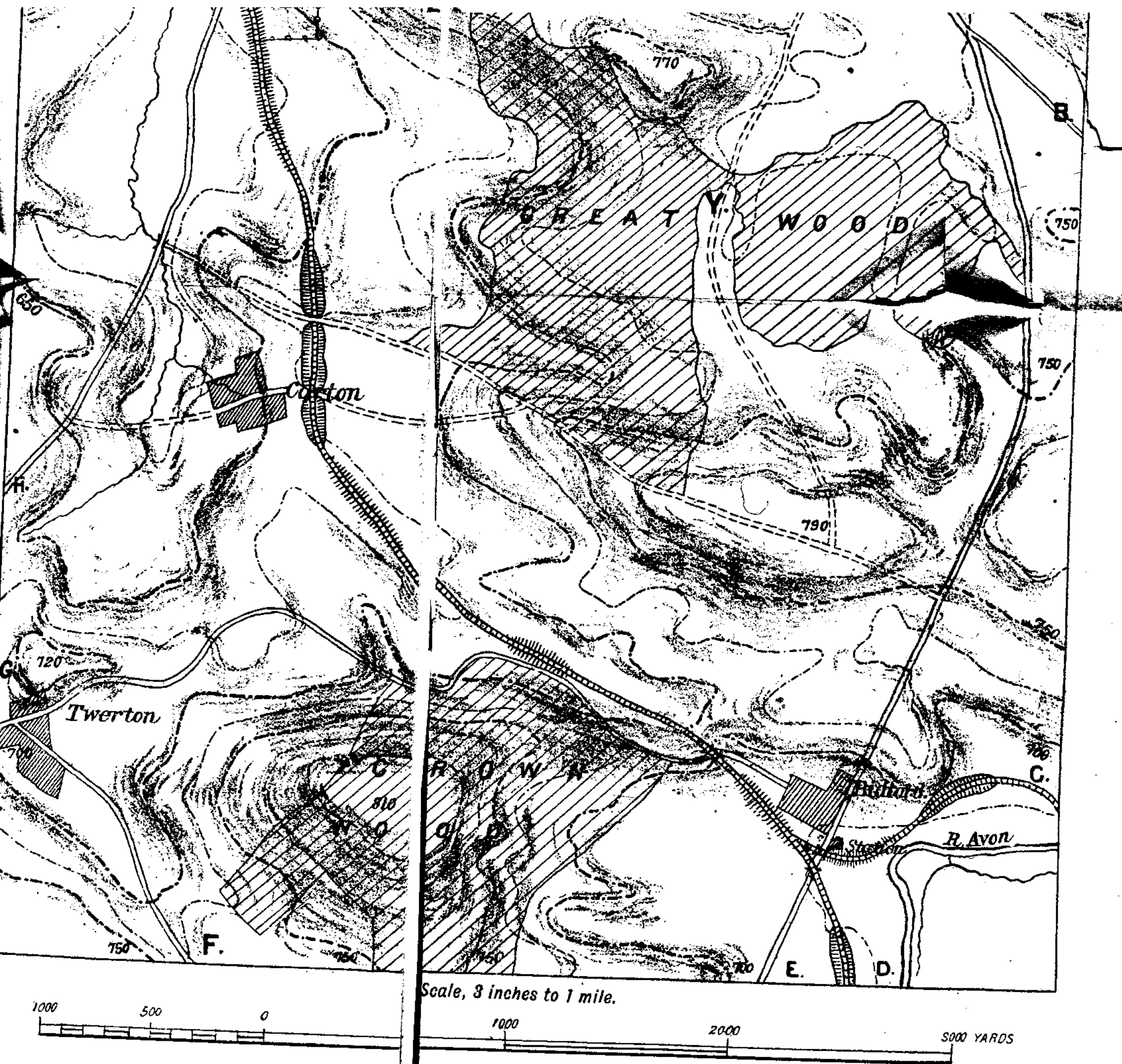
The place of assembly for the right column will be

MILITIA COMPETITIVE TACTICS.

MARCH, 1892.

Plate XXXVII





the cross-roads south of Bidford, that for the left column will be issued in orders.

The company of infantry on outpost duty and four troopers will remain behind, and when the first column move off will send back half a company to the bivouac to take charge of the baggage, which will be parked.

The piquets will not be withdrawn.

The night piquets will be posted after dark, each consisting of 12 men and N.C. officers:

No. I. at C.

No. II. on hill 790.

No. III. at M.

An officer will command the piquets, and his place will be with the central piquet.

Two officers will be with the baggage.

There will be no lights allowed in camp.

CHAPTER XXII.

FIELD ENGINEERING.

THE close relation between tactics and field engineering has always been recognised ; yet the Austrian entrenchments at Königgrätz were, owing to a faulty organisation, mostly unoccupied, and in some instances extended beyond the position selected for defence. There was no tactical connection between the works and the troops ; that is to say, the Austrian engineers, acting under the orders of the commanding engineer of the army, made a number of works on the ground, but the divisional commanders knew nothing whatever of these works, and were even in ignorance of the exact position they were to hold.

The improvements in modern firearms have increased the value of field defences, but these defences must adapt themselves to the tactical requirements of the situation. The large masses brought into the field, the extensive area covered by the combatants, the brief interval available for preparation, demand that field engineering should no longer be an art confined to a single arm, but should form part of the education of all. The cavalry of to-day must be able to move rapidly and independently or it will lose all chance of effecting a surprise. It must understand how to increase the capabilities for defence of any locality by the employment of the most simple means and methods. Operations such as the demolition

of railways, telegraphs, &c., which have to be carried out often in the presence of an enemy, and usually in a limited time, require not only special appliances, but a thorough previous training. The work required of a cavalry screen will not admit of delay, and the destruction by an active enemy of the bridges across a stream blocking the line of advance may have far-reaching results.

To meet such an emergency, the German cavalry have recently been provided with folding linen boats, two being issued to each regiment. Each boat, if used for ferrying purposes, holds eight men fully equipped, and the horses swim with them. The boats are in three parts,—viz., one centre-piece, square at both ends, and two end-pieces, which are square at one end and pointed at the other.

Two four-horsed waggon carry the boats and all the superstructure required for bridging, which in cold weather is the preferable method of crossing. A bridge three metres wide, to carry cavalry in half sections with distances of a horse's length, or field guns, either man-harnessed or drawn by two horses, can be rapidly placed to a length of eight metres with the material carried by one regiment. This length is approximately doubled, if the breadth of the bridge be reduced to one metre, when each boat furnishes two pontoons, the centre-piece being one support and the two end-pieces fastened with their square ends together forming the other. In order to accelerate the passage of a river, and in view of occasions when the folding boats cannot be utilised, the German cavalry have practical exercises in turning to account such unprepared *matériel* as may be available.

So also in the case of infantry, although the equipment must be light and such as can be easily carried by the soldier or in the battalion waggon, each unit should

be trained to prepare its own hasty defences. such as shelter trenches, breastworks, hedges, &c. After the siege of Plevna, General Skobelev armed the whole of his force with spades, and so fully had the men become convinced of the value of these tools that, during their struggles through the snow-blocked passes of the Balkans, the spade was the last article they would part with, always excepting their rifles and ammunition. These heavy tools were carried to the gates of Constantinople. Yet Skobelev's column was essentially an active and enterprising force !

The special and scientific branch—*i.e.*, the engineer corps—will be indispensable when it is a question of placing permanent bridges, effecting deliberate and extensive demolitions, or constructing works of a solid and durable nature. As examples, may be quoted lines of investment round a fortress, siege batteries and parallels, restoring railways and telegraphs, throwing up redoubts in a position deliberately prepared for defence. Nevertheless, the temporary independence of each arm as regards field engineering has, under modern tactical conditions, become indispensable. This fact is fully recognised in the instructions recently issued to the German army, and the necessary detail is clearly but briefly given. The Instructions for Cavalry deal only with hasty kinds of bridging, demolitions, and defence of posts. The Instructions for Infantry contain hasty entrenchments and the general principles of the work which infantry may have to carry out under the direction of engineers, but neither bridging nor demolitions. It has been assumed that these duties fall to the advanced cavalry, and that any work which they are unable to perform will be carried out by the engineers accompanying the infantry columns. It seems most desirable that such

a division of duties, training, and equipment should be adopted in our own Manual of Field Engineering which is now undergoing revision.

In field engineering the first requisite is to secure a good field of fire. This depends chiefly on the selection of a suitable site, and secondarily on a judicious clearance of the foreground. Great care should be exercised lest more work be undertaken than can be completed with the time and means available. Existing cover, such as embankments, hollow roads, walls, hedges, banks, &c., when found in a suitable position, should always be improved and occupied, provided that the ground in front can be well seen, and that a clear field of fire can be obtained. The construction of obstacles is of minor importance as compared with efficacy of fire, but existing obstacles should be left, and may be hastily improved. Officers should be familiar with the different types of shelter-trench and breastwork, the application of each, the distribution of tools, the extension of working parties. These matters cannot safely be left for improvised solution in the face of unforeseen danger or difficulty.

CHAPTER XXIII.

IMPROVED FIREARMS AND SMOKELESS POWDER.

THE changes which have been brought about in battle by the latest improvements in modern firearms may be briefly summed up as follows:—

1. The commencement of the attack is hampered more than formerly by the increased range and accuracy of artillery fire; nevertheless, in order to avoid the evils attending the *premature* deployment of large bodies, every effort should be made to retain troops in close order up to the moment they become engaged.
2. Greater distances between lines in the attack are necessitated by the increased range and flatter trajectory of guns and rifles. Dense formations are much more vulnerable than formerly; still, excessive deployments must be guarded against, and cohesion between units must be maintained.

Attacking troops are best disposed in *three* lines
distributed in depth.

Enveloping and wide turning movements are more frequent, but they require to be strongly supported, and should only be attempted when the numerical superiority of the assailant is great, or when the formation of the ground favours his artillery, or prohibits counter attack.

3. The exhaustion of ammunition is a most serious

consideration, far more so than formerly, and every effort should be made to husband it.

4. Increased rapidity of fire and liability to sudden heavy losses, especially amongst officers, has led to greater importance being attached to "fire discipline." Soldiers must be taught to be able to think and act for themselves, and to rally quickly under the nearest officers when units become mixed up in the stress of battle. Officers must be trained to keep up cohesion in their units, to act in concert with the units on their right and left, and to watch for a slackening in the enemy's fire to push forward.
5. Halts should only be made under cover, and then only to re-establish cohesion, serve out ammunition, or give time for other units acting in concert to come up. Every effort must be made to keep up a steady advance.
6. The increased range of modern rifles is in favour of the defence. On the other hand long range rifle fire on the side of the assailants can seldom be used with much effect; it acts injuriously on their *moral*, wastes ammunition, and delays the first object of the attack, which should always be, after the advance has once commenced, to bring about the crisis in the shortest possible time by suddenly opening a crushing fire within decisive range of the enemy, and thus prepare the way for the actual assault.
7. The importance of cover in attack and defence has greatly increased; nevertheless, in the attack, its use must be subordinate to cohesion, and the necessity to keep on advancing steadily in the

8. The principal element of success in battle is the application of fire tactics; still, the bayonet may often have to be resorted to before stubbornly-defended positions can be captured.
9. There is, as Skobelev said, "a time on every battlefield when one of two things must happen,—either the enemy will show signs of wavering, or your own side will; this is the supreme moment for the commander to throw his reserves into the fight, and in order to do so he must be in the fighting line, or he will not be able to feel the pulse of the battle and give the necessary orders in time."
10. The confusion and mixing up not only of fire units, but of whole battalions and brigades, is almost inevitable, and no amount of fire discipline will prevent it. Officers and non-commissioned officers must be prepared for this, and must rally and lead on the men about them, and do their utmost to maintain some sort of cohesion, and, above all, the right direction.

Smokeless Powder.

Smokeless powder will not upset the principles of tactics; but, owing to the greater rapidity of fire when the vision is not obscured, and the increased certainty of aim arising from its use, and also the difficulty experienced by the enemy in determining whence the fire proceeds, it must to a certain extent modify the conditions of modern warfare. On the whole the defence will profit most by its introduction, as the difficulty of reconnoitring the position of an enemy and the danger to scouts in approaching an enemy too closely will be greatly increased.

The effects of smokeless powder on the minor tactics of the three arms may be briefly summed up as follows:—

Artillery.

1. The defenders' batteries will remain longer masked.
2. The assailants' batteries will be able to remain stationary for a longer time.
3. Improved shooting, fire discipline, fire tactics, and greater facilities for laying, an observation of fire will be common to the artillery of both sides.
4. Guns and batteries will be able to fight at reduced intervals, and in the defence, and sometimes in the attack, tiers of fire will be possible.
5. Guns on the move will be more exposed to view.
6. Large bodies of infantry will be unable to approach artillery unperceived; but, on the other hand, individual marksmen will be able to get closer to guns over cramped country.
7. At medium range the absence of smoke will enable artillery to support attacking infantry longer, but not from distant range. Formerly the smoke of the infantry firing line indicated its whereabouts from a distance.
8. Since the combustion of smokeless powder is very rapid, and causes great erosion of the vent, it will be necessary to introduce metal cartridge cases or a ventilating tube.
9. Owing to the increased accuracy and rapidity of the fire of the defence, the necessity for preparing the way for infantry to attack with artillery will be greater than ever.

Cavalry.

1. Cavalry will no longer be able to effect surprises under cover of thick volumes of smoke.

2. On the other hand, the absence of smoke, especially on an extended field of battle, will allow cavalry leaders to see what is taking place, and enable them to co-operate with the other arms with greater confidence.
3. It will be more difficult to reconnoitre, and cavalry will have to dismount more frequently, especially when reconnoitring.

Infantry.

The advantages to the infantry of the defence will be as follows :—

1. Sentries on outpost duty and the firing line in defence will not be revealed by smoke.
2. The fire will be more rapid and more accurate.
3. Fire discipline, and fire tactics, will both be facilitated.
4. The supports and reserves of the assailants will be visible, and specially detailed troops on the defenders' side will be employed to fire on them.
5. Changes of position on the part of the assailants will be easier to observe.
6. The strength of the defence over open ground will be increased.
7. Long range fire will be more effective.

Advantages to attacking infantry :

1. Greater facilities for cohesion between adjacent units.
2. Greater rapidity and accuracy of fire.
3. Improved fire discipline, and control.
4. Skirmishers and extended firing line will not be so visible on cramped ground.

Disadvantages to attacking infantry :

1. Exposure of supports and reserves and more or less of all troops behind the firing line.
2. Greater necessity for cover.
3. *Moral* will probably be affected by men not seeing where the bullets come from.
4. Extensions to avoid loss from enemy's aimed fire will have to take place sooner, though actual attack formations need not be assumed.

The effect of smokeless powder common to all arms will be :—

Greater visibility in motion, less visibility at rest, increased importance of cover, increased difficulties when reconnoitring, impossibility of advancing or retreating under cover of smoke, necessity for doing away with bright arms and accoutrements.

The commencement of an attack will be delayed, but once within view of each other the issue of a battle will be more quickly brought about.

The expenditure of ammunition will be far greater.

CHAPTER XXIV.

SAVAGE WARFARE.

THE Drill Book says: "Against untrained and indifferently armed races close formations are not only practicable but often essential, and should be used to the fullest extent possible, but care must be taken to develop to the utmost the power of each arm."

There are two descriptions of savage warriors: the recklessly brave, who always attack; and those who are less daring in the open, but who, from their cunning and power of readily adapting themselves to circumstances of time and place, are formidable adversaries.

Against the former a square formation may be adopted, especially when their tactics are annular, or when they direct their attacks simultaneously from different directions, the object being not only to give confidence to troops who are desperately assailed by vastly superior numbers, but to oblige the enemy to advance on a narrow front, which, with savages, generally means a dense rather than a deep formation.

Machine guns may sometimes with advantage be placed in the angles of the squares, but artillery should be massed and fight in line outside in prolongation of one or other of the faces. It can seldom be desirable to place guns in the angles. Guns placed outside can easily be shifted from one side of a square to another if required.

Mounted infantry may be used to threaten the enemy in flank and in rear; the superior mobility of this arm

often makes it a very desirable adjunct to infantry in savage warfare.

Cavalry will always be employed in scouting and in pursuit. In the absence of cavalry, mounted infantry can perform these duties. The improvements in modern firearms have greatly increased the power of civilised troops when dealing with savages.

The mobility of a savage enemy, and the necessity for protecting the sick and wounded and baggage, may often oblige a small force not only to fight but to march in a square formation.

The assumption of the offensive is comparatively easy when opposed to savage warriors who have no guns and no cavalry.

A good formation for attack is "Short Echelon," with a portion of the infantry held in reserve.

Take for instance a brigade of infantry :—

One battalion in line in the centre.

One battalion in echelon of half battalions in line in rear of each flank.

One battalion following in rear of the centre in quarter column or in square.

The artillery on the protected flank.

Machine guns on the flanks of the centre battalion.

- Cavalry supported by mounted infantry with their machine guns in front and on both flanks while scouting, and when driven in following in rear of the centre or flanks, according to circumstances, the tactics of the enemy, and the ground.

This formation, while it admits of the utmost development of fire to the front, can readily be wheeled to meet an attack from any direction.

The half battalions can be quickly formed into squares, preserving at all times a shoulder-to-shoulder formation, and one which gives effect to the close and rapid fire of breech-loading magazine rifles.

Savages who are not numerically vastly superior, or who show little inclination to advance, should almost invariably be attacked with the utmost dash and determination.

The cavalry, artillery, and mounted infantry coming into action boldly on the flanks and threatening their rear.

Pursuit should always be vigorous.

In savage warfare outposts must be most carefully posted to guard against surprise, and sentries should ~~generally~~ be posted in groups, with their piquets close to them.

In savage warfare the chief point to guard against is surprise.

CHAPTER XXV.

THE EMPLOYMENT OF CYCLIST INFANTRY.

By EUSTACE BALFOUR, M.A., Lieut.-Colonel London Scottish R.V.

CYCLIST infantry may be used, firstly, in conjunction with advanced cavalry and mounted infantry, and, under certain conditions, in a country like Great Britain, for instance, which is intersected by roads and subdivided by hedges, and unsuitable for the action of cavalry, they might perform all the duties of screening troops; secondly, for rapidly seizing and holding distant positions of tactical importance, or rapidly concentrating for the defence of similar places; thirdly, for reconnaissance work of all kinds, including the patrols from outposts sent out along the roads leading towards the enemy; fourthly, as escorts to artillery and convoys; fifthly, on the lines of communication, and for the conveyance of information and orders; and, sixthly, for acting against the enemy's lines of communication by wide flank movements. The capability of cyclist infantry performing these duties, and some of the methods by which they can be carried out, are the questions which will be briefly discussed in this chapter.

There are three ways in which cyclist infantry might co-operate with cavalry or mounted infantry, and thereby save a great loss in horses. Firstly, the cyclist infantry might advance along the great main roads close behind the advanced cavalry, and form a suffi-

ciently strong body to give backbone both for resistance and attack. Secondly, they might relieve the cavalry or mounted infantry from many duties especially harassing to horses, such as conveying information and certain kinds of reconnaissances. Thirdly, in the case of an expedition landed on the coast of a hostile, but civilised country, cyclists could, in the preliminary stage, before the horses could be landed, and before they had recovered from the effects of the voyage, replace cavalry in scouting operations, in seizing distant points by a *coup de main*, and in holding them until reinforced. The operation of landing cyclists is scarcely more difficult than that of landing infantry, and could easily be performed, in moderate weather, in small boats on an open beach.

Much amusement has been caused amongst unthinking persons by the fact that a body of cyclists has been raised and trained in the Royal Marine Light Infantry. Further consideration will lead to the conclusion that at the critical period of effecting a landing, cyclist-marines might be invaluable. But it is scarcely worth while to discuss these points separately, because, if it can be shown that cyclist infantry are capable by themselves of carrying out the six main duties above mentioned in a civilised country, it is clear that they will be able to supplement and assist other mounted arms in the performance of the same kind of work.

Let us, then, pass directly to the question as to how far cyclist infantry are capable of fulfilling the six duties which, as stated above, must be assigned to them in the absence of other mounted arms.

The first duty is that usually performed by the cavalry screen. In order to carry this out efficiently the following requirements will have to be fulfilled—

rapidity, endurance, power of attack and defence, power of maintaining a continuous line of front, power of rapid concentration, independence as to supply of ammunition, indestructibility as to means of locomotion.

Let us examine how far cyclist infantry fulfil these conditions as compared with other mounted arms.

1. *Rapidity*.—Six miles an hour will probably be a safe minimum calculation for cyclist infantry in considerable bodies, when not in contact with the enemy. This will give 48 miles in a day of eight hours. It should be observed, however, that cyclists can (if the roads are good) move over short spaces at a very high speed. But looking at this point generally, we may fairly say that, under the most adverse conditions, the pace of cyclist infantry is considerably ~~greater~~ than that of infantry; that, under average conditions it is greater than that of cavalry for a long distance, and that it is slower than that of cavalry for a very short distance. The last statement, however, requires some qualification, for if cyclist infantry are careful in a hilly country to make their points for dismounting, either for attack or defence, just behind the summits of hills, they will have the advantage, both in advance and retreat, of being able to go down hill; and the descent of a hill gives the greatest advantage to a cyclist, and the greatest disadvantage to a horseman.

2. *Endurance*.—It has already been pointed out that 48 miles can well be covered on the average by a cyclist infantry soldier in a day, and there is no difficulty, as far as he is concerned, in continuing to do this length of march day after day. As far as his machine is concerned, there should be no difficulty either, if it is strongly constructed. It may be also pointed out that spare portions, such as

wheel spokes, can be easily carried, and that when one fixed type of cycle is adopted, a complete machine will be able to be constructed out of two injured ones. These are advantages which veterinary surgery has not yet been able to confer on cavalry soldiers. Under the head of endurance, a further point may, perhaps, be mentioned,—namely, that as all the energy is supplied by the rider, and not by the thing ridden, extraordinary feats may be performed under the influence of excitement or of great necessity.

3. *Power of Attack and Defence.*—Let us consider the simplest case that can arise. Say that 10 cyclist infantry meet 10 cavalry—what are the relative advantages in a direct fight? The cavalry cannot charge, —a rule, with much effect, even if the ground is favourable, for the cyclist infantry have all the advantages of ordinary infantry as against cavalry. The engagement is, therefore, a dismounted one on both sides. But here the cyclist infantry have at once the following points in their favour: They have long rifles against carbines;* they require no non-combatants to hold the cycles, and the cycles themselves are not easily injured by bullets. We may, therefore, lay down the general proposition that on fair roads cyclist infantry have nothing to fear from approximately equal bodies of cavalry, and consequently they need not retreat, even when threatened in flanks or rear by small bodies. It should be observed on the other hand that in *open* country cyclist infantry can be terribly harassed by small bodies of cavalry, whose own lines of retreat are secure, constantly threatening them on the flanks and rear. But any attempt on the part of cavalry to carry out these tactics in a country

* This does not apply to mounted infantry.

intersected by hedges and ditches would probably lead to severe loss to themselves.

4. *Power of Maintaining a Continuous Line of Front.*

—The cyclist-infantry screen will, of course, take the form of a series of patrols moving along more or less parallel roads with supports and reserves. The formations of these patrols will be almost exactly the same as those of corresponding cavalry patrols, except that the main bodies should be, in proportion, rather stronger. In order that a continuous and unbroken front may be maintained, it is clearly necessary, firstly, to arrange for lateral communications between the various patrols; and, secondly, to leave no portion of intermediate country which could hide the enemy's cavalry unsearched. Lateral communications will, of course, be made at cross-roads, and will be arranged for by the officer commanding the whole cyclist infantry advanced force. It will be the business of the commanders of the various patrols to scout the intermediate country, using their judgment in each case, as it arises, as to how far they are justified in delaying their advance for the object of searching a particular place. The flankers employed for this purpose will be detached temporarily from the main body of the patrol. If the place to be searched is a farm or small collection of buildings off the main line of advance, there will almost always be a road or path leading to it, and the flanking party will take the form of a small mounted diverging patrol. In many cases, however, such as woods, defiles, &c., the flankers may have to proceed on foot, and the pace of the whole party would be then temporarily reduced to a walk. A further use of cyclists in this connection may be found in their

employment as signallers. When two or more columns are advancing in a close country along parallel roads, the maintenance of communication between them by signalling is very difficult, because the signallers have first almost always to leave the road to reach a high point; then to spend some time in obtaining communication; and then more time in sending the message, and receiving the answer. By this time the column is far ahead, and they have no means of rejoining it. Cyclists, on the other hand, could rejoin in a very short time, and even go ahead to establish the next communication.

5. *Power of Rapid Concentration for Attack or Defence.*—The officer commanding the whole advanced force of cyclist infantry will be in a central position, and, with the system of lateral communication before alluded to, aided where possible by signallers and telegraphists, will have the power to bring his supports and reserves rapidly to resist attack at any threatened point, or to penetrate the enemy's screen at the most vulnerable place.

6. *Independence as to Supply of Ammunition.*—Cyclist infantry will, without difficulty, be able to carry 322 rounds of ammunition, which would make the cyclist independent of the ammunition column.

7. *Indestructibility of means of Locomotion.*—As before stated, a properly constructed military cycle will be less subject to accidents than a horse. It can be repaired either in the field or at the nearest country town. The parts of different machines will be made interchangeable, so that a complete cycle can be made from two broken ones. These advantages are not possessed by horses.

The second use to which cyclist infantry may be

put is that of seizing a distant point of tactical importance, or concentrating for the defence of a similar place. We must think of them here simply as a body of infantry capable of moving rapidly over long distances, and of fighting as infantry. But it should be noted that they have some advantage even over mounted infantry. They can, with great ease, for a portion of the distance they may have to cover, use railway transport. Any casual train, of whatever description, will serve their purpose, and they require no specially constructed platform accommodation. A few coal-trucks and a locomotive are all that they need. Then, supposing that they have actually seized the point in question, and placed it in a state of defence, they have the advantage ~~over~~ mounted infantry that cycles consume neither water nor forage. When cyclists are employed for seizing distant points, the operations must often be of the nature of a surprise, and consequently have to be carried out at night. Here cyclist infantry have many advantages over troops mounted on horses; they are absolutely noiseless, for even on the hardest roads, and in the stillest night, they do not betray rapid approach by a sound; whereas the advance of horses can be easily detected and prepared for, as it is not difficult to judge of their numbers by the clatter of their hoofs. If a night were so dark that lamps were essential, a cavalry advance would be impossible without artificial light. So long as it is perfectly certain that the enemy could not see the advance, increased rapidity may be gained by having the cycle-lamps lighted. Experience, however, has shown that a cyclist at night easily falls into an ambush.

then be captured by a couple of men. This danger is, of course, due to the very rapidity with which he moves. It can be best guarded against by strengthening the advanced portion of the force, and simultaneously diminishing the distances between the units composing it, when contact with the enemy is possible. Thus, supposing that a party of cyclists was advancing at night with a "point" consisting of four men, in the neighbourhood of the enemy that might be increased with advantage to eight men. These should move in such formation and at such distances that if the leader fell into any trap, the fact would be known to the man following. He would warn the commander of the party, who would have a force in hand sufficient to deal ~~with~~ any ordinary situation.

The third use that cyclist infantry may be required for is reconnaissance work. This may have to be done in actual contact with the enemy, in possible contact with the enemy, or out of possible reach of the enemy. The advantages and disadvantages which cyclist infantry possess with respect to the two first cases have been already touched upon under the head of "Cyclist Infantry Screen." In the ordinary work of reconnoitring and noting all the features of country out of reach of the enemy, the following are the chief points to observe:—

Cyclists, from the very nature of their habits, understand the use of maps from a practical point of view. They are specially able to judge as to the condition of roads for the purposes of wheel traffic, and they are, perforce, obliged to note the gradients of the hills. They can measure distances on a road with accuracy up to a few inches by counting their pedal strokes. They can dismount without having to fasten up horses

to examine any special features, such as the strength of a bridge, or the accommodation and resources of a farm. It has been suggested* that "if a certain number of trained photographers carried a hand camera on their cycles and practised photography as applied to reconnaissance, a still wider sphere of usefulness lies open to military cyclists. For some years past photography has been practised at the Staff College in making reconnaissances, and Colonel Everett, late Professor of Military Topography at the Staff College, stated last year, at the Royal United Service Institution, that he had come to the conclusion that photographs were better than the best sketches that could be made, giving as an instance that only a photograph could give the exact details of a bridge that might have ~~to be~~ destroyed."

The fourth use that cyclists may be put to is escorting convoys and artillery. Guns and wagons are necessarily dependent on roads, and it is in the vicinity of roads that cyclists are essentially a fighting force, combining the rapidity of cavalry with the superior mobility of infantry. Guns seldom come into action very far from a road, and convoys never leave the roads except to park; again, cavalry escorts to guns have frequently to fight dismounted.

The fifth use that cyclists may be put to is conveying information and carrying orders. There is little to say under this heading, except that over short distances the men employed on this duty would be able to proceed very rapidly, and that their power of endurance over long distances is very great.

Lastly, with respect to acting against the enemy's

* In an article which appeared in "The Messenger," of Nov. 4th,

lines of communication, very wide turning movements might be made without much fatigue.

In addition to the above special characteristics, of cyclist infantry, we may note the fact that we have in this country at the present moment an enormous recruiting ground for this particular arm, and also that little special training is required beyond what is necessary for ordinary infantry. A cyclist infantry recruit starts, in fact, on a level with a cavalry recruit, *after* the latter has been through the riding-school. The initial expense of a cycle is very small compared with a horse. The cost of keep and repair is less than that required for shoeing, maintaining, harnessing, and stabling a horse. The labour of cleaning is insignificant, so that almost the whole of a cyclist infantry soldier's time can be given up to acquiring skill in the necessary duties of an effective combatant, and when in the field he is not fatigued by the labour of grooming, feeding, and watering his horse.

APPENDIX.

THE FIELD ORGANISATION OF THE BRITISH ARMY.

Home Defence.

(Compiled from Army Orders.)

A COMPANY OF INFANTRY IN THE FIELD.

Major or captain	1
Subalterns	2
Sergeants	5
Drummers and buglers	2
Corporals	5
Privates	100
Privates as drivers	2

Total of all ranks 117

A BATTALION OF EIGHT COMPANIES IN THE FIELD.

(After deducting 3 sergeants and 8 privates left at place of concentration.)

Personnel.	Horses.	Carriages.
Officers . . . 29	Riding 8	Carts entrenching tools 1
Warrant officer 1	Draught 30	Carts S.A. ammunition 4
Sergeants . . . 47	Mules 2	General service wag- gons 4
Drummers and buglers . . . 16		
Pioneers . . . 13		
Band . . . 20		
Corporals . . . 41		
Privates . . . 816		
Privates as drivers 17		

N.B.—After deducting 96 men left at the base, the war strength of a battalion abroad is practically the same as that of a battalion at home.

Total of all ranks 1,000

AN INFANTRY BRIGADE.

- 4 Battalions.
- 1 Machine gun section.
- 1 Company army service corps.
- 1 Bearer company.

AN INFANTRY MACHINE GUN SECTION (2 GUNS).

Personnel	Carriages.	Guns.
Officers 1	Forage cart 1	Two horses to each gun.
N.C. Officers and men 12	S.A.A. cart 1	

A COMPANY ARMY SERVICE CORPS.

Personnel.	Horses.	Carriages.
Officers 5	Riding 15	Forage carts 3
N.C. officers and men 132	Draught 136	Water carts 1
		Forage waggons 1
		Gen. service waggons 16

A BEARER COMPANY

Personnel.	Horses.	Carriages.
Officers 3	Riding 7	Forage carts 1
N.C. Officers and men 61	Draught 52	Water carts 1
Transport attached 37		General service wag- gons 2
		Ambulance waggons 10

AN INFANTRY DIVISION

- 2 Complete infantry brigades.
- 1 Divisional squadron of cavalry.
- 3 Batteries of field artillery.
- 1 Divisional ammunition column.
- 1 Field company royal engineers.
- 1 Company army service corps.
- 1 Field hospital.

Total 323 officers, 9,460 N.C. officers and men, 1,641 horses.

A BRIGADE DIVISION OF ARTILLERY.

A Brigade Division of horse artillery is two batteries.

A Brigade Division of field artillery is three batteries.

A BATTERY FIELD ARTILLERY OF SIX 12-PR. B.L. GUNS.

Personnel.	Horses.	Carriages.
Officers . . . 5	Riding 29	Gun carriages 6
Sergeants . . . 9	Draught 102	Ammunition waggons 6
Artificers . . . 8		Forge waggons 1
Corporals . . . 6		Ammunition and store waggons 1
Trumpeters . . . 2		Artillery waggons 2
Bombadiers . . . 6		Store waggons 1
*Gunnery . . . 76		
Drivers . . . 59		
*Storeman . . . 1		

Total all ranks 171

N.B.—*Service Abroad: A battery has 63 drivers.*

A DIVISIONAL AMMUNITION COLUMN.

Personnel.	Horses.	Carriages.
Officers 3	Riding 26	S.A.A. carts 10
N.C. officers and men 192	Draught 196	Gun carriages 1
		A. & S. waggons 2 (with limbers)
		Ammunition R.A. 6
		A. & S. waggons R.A. 18
		Forge waggon 1

* Storeman left at concentration place.

A FIELD COMPANY ROYAL ENGINEERS.

Personnel.	Horses.	Carriages.
Officers 7	Riding 18	Forage carts 3
N.C. officers and men	Draught 38	Forage waggons 3
206	Pack 5	Tool carts 4

FIELD HOSPITAL OF 100 BEDS.

Personnel.	Horses.	Carriages.
Officers 5	Riding 8	Forage cart 1
N.C. officers and men	Draught 20	Water cart 1
40		General service wag-
17 " transport		gons 4

AN ARMY CORPS IN THE FIELD.

3 Complete infantry divisions.

CORPS TROOPS.

Headquarters and 1 squadron of cavalry.
 2 Batteries horse artillery (1 Brigade Division).
 6 Batteries field artillery (2 Brigade Divisions).
 1 Corps artillery ammunition column.
 1 Ammunition park.
 1 Field company royal engineers.
 1 Pontoon troop.
 1 A telegraph battalion.
 A balloon section.
 Engineer field park.
 1 Battalion infantry.
 1 Machine gun section.
 1 Dismounted company army signallers.
 1 Company army service corps.
 1 Company bakery column.

Total 1,129 officers, 32,110 N.C. officers and men, 7,416 horses and pack animals, 14 machine guns, one horse each, 248 two-horse carriages, 553 four-horse carriages, 334 six-horse carriages, including 90 guns.

A HORSE ARTILLERY BATTERY OF SIX 12-PR. B.L. GUNS.

Personnel.	Horses.	Carriages.
Officers . . . 5	Riding 85	Gun carriages 6
Sergeants . . . 9	Draught 106	Ammunition 6
Trumpeters . . . 2		Waggons R.A. 5 for
Artificers . . . 9		baggage and supplies
Corporals . . . 6		and forge
Bombardiers . . . 6		
Gunners . . . 74		
Drivers . . . 68		
† Storeman . . . 1		

N.B.—Service Abroad: A horse artillery battery has 73 drivers.

Total all ranks 179

* The detail of artillery with an army corps is taken from the Field Artillery Drill, 1896.
 † Storeman left at concentration place.

A PONTOON TROOP.

Personnel.	Horses.	Carriages.
Officers 5	Riding 22	Forage cart 1
N.C. officers and men 208	Draught 162	Pontoon trestle, forge, &c., &c. 6
		Pontoon waggons 20

HALF TELEGRAPH BATTALION.

Personnel.	Horses.	Carriages.
Officers 7	Riding 44	Forage cart 1
Mounted N.C. officers and men 135	Draught 126	Four-horse waggons 5
Dismounted N.C. officers and men 104		Six-horse waggons 16

A BALLOON SECTION.

Personnel.	Horses.	Carriages.
Officers 3	Riding 9	Forage carts 2
Mounted N.C. officers and men 25	Draught 32	Balloon equipment 6
Dismounted N.C. officers and men 25		

ENGINEER FIELD PARK.

Personnel.	Horses.	Carriages.
Officers 1	Riding 5	Forage carts 2
N.C. officers and men 43	Draught 44	G.S. waggons R.E. 9 carrying technical equipment, for de tails of which see Corps Manual (R.E.)

DISMOUNTED COMPANY ARMY SIGNALLERS

Personnel.	Horses.	Carriages.
Officers 2	Draught 6	Carts 3
N.C. officers and men 35		

COMPANY FIELD BAKERY COLUMN.

Personnel.	Horses.	Carriages.
Officers 5	Riding 28	Water carts 6
N.C. officers and men 317	Draught 248	Forge waggon 1
		General service wag- gons 31
		Travelling steam ovens 24

A SQUADRON OF CAVALRY IN THE FIELD.

Personnel.		Horses.	Carriages.
Majors or captains	2	Riding 130	S.A.A. waggons 1
Lieutenants	4	Draught 8	G.S. waggons 1
Sergeants	3	Pack 1	
Corporals	8		
Artificers	4		
Trumpeters	2		
Privates	88		
As stretcher bearers	2		
As drivers	4		
Total mounted	122		
		DISMOUNTED.	
		Bâtmen	12
		Cooks	2
		Waggonmen	2
		Saddler	1
		Total	17

N.B.—*Service Abroad: A squadron consists of 125 mounted and 19 dismounted of all ranks.*

A REGIMENT OF CAVALRY OF FOUR SQUADRONS.

Personnel.	Horses.	Carriages.
Officers 28	Riding 545	Forage cart 1
Warrant officers 1	Draught 50	Forge cart 1
Sergeants 40	Pack 4	S.A.A. carts 4
Artificers 22		G.S. waggons 4
Corporals 32		
Trumpeters 8		
Bandsmen 15		
Privates 435		
As drivers 25		

ATTACHED.

Medical officer 1
Veterinary officers 2

Total all ranks 606

N.B.—*Service Abroad: After deducting 49 men left at the base, total all ranks, 618 in the field.*

A CAVALRY BRIGADE.

- 3 Regiments of cavalry.
1 Cavalry machine gun section.
1½ Companies army service corps.

CAVALRY MACHINE GUN DETACHMENT (2 GUNS).

Personnel.	Horses.	Carriages.
Officers 1	Riding 7	Forage cart 1
N.C. officers and men	Draught 14	S.A.A. waggon 2

MOUNTED DETACHMENT R.E.

Personnel.	Horses.	Carriages.
Officers 4	Riding 90	Forage carts 6
N.C. officers and men 114	Draught 24	S.A.A. waggons 3
	Pack 6	

A COMPANY OF MOUNTED INFANTRY.

Personnel.	Horses.	Carriages.
Officers . . . 5	Riding 118	Forage cart 1
Sergeants . . . 6	Draught 12	S.A.A. cart 1
Artificers . . . 5		
Buglers . . . 2		
Corporals . . . 6		
Privates . . . 97		
Drivers . . . 6		
Waggonmen . . . 2		
<hr/>		
Total all ranks . . . 129		

A Mounted Infantry Machine Gun Section of 2 guns has the same detail of men and horses as a Cavalry Machine Gun Section.

FIELD ORGANISATION BRITISH ARMY SERVICE ABROAD.

A Company of Infantry has 1 private less than on home defence.

A Battalion of 8 Companies has 70 more privates and 15 more privates as drivers than on home defence.

A Squadron of Cavalry has 2 more privates and 3 more privates as drivers than on home defence.

A Regiment of Cavalry after deducting 46 privates left at the base has 1 less private and 10 more drivers than on home defence.

A Battery of Field Artillery has 4 more drivers than on home defence.

A Battery of Horse Artillery has 5 more drivers than on home defence.

A CAVALRY DIVISION SERVICE ABROAD.

(There is no Cavalry Division detailed for Home Service.)

2 Cavalry brigades.

2 Batteries R.H.A.

Mounted detachment R.E.

1 Battalion mounted infantry.

1 Machine gun section.

Divisional ammunition column.

1 Company army service corps.

1 Field hospital.

Total, including staff, 327 officers; rank and file, 6,701; horses of all kinds, 6,676; machine guns, 6; guns, 12.

A BATTALION OF MOUNTED INFANTRY SERVICE ABROAD.

Officers	48
Warrant officers and sergeants	58
Buglers	16
Artificers	40
Corporals	48
Privates	802
Drivers	61
Waggonmen	28

1,101

(To be deducted—Detail left at base, 2 sergeants 16 privates).

REGIMENTAL OFFICERS.

A Battalion of Infantry has 1 lieut.-col., 1 mounted major, 3 dis-mounted majors, 5 captains, 6 subalterns, 1 adjutant, 1 quartermaster, and 1 medical officer attached.

A Mounted Infantry Battalion has 1 lieut.-colonel, 1 major, 8 captains, 32 subalterns, 1 adjutant, 1 quartermaster, 1 medical officer, and 3 veterinary officers attached.

A Cavalry Regiment has 1 lieut.-colonel, 3 majors, 6 captains, 16 subalterns, 1 adjutant, 1 quartermaster, 1 medical and 2 veterinary officers attached.

A Battery Royal Artillery has 1 major, 1 captain, 3 subalterns (a medical officer and 2 veterinary officers are attached to each horse and field artillery division).

A BRIGADE DIVISION OF ARTILLERY consists of 2 or 3 batteries.

STAFF.

WAR ESTABLISHMENT.

DETAIL OF THE STAFF OF AN INFANTRY BRIGADE, WITH OFFICERS, &C., ATTACHED.

Ranks.	Personnel.					Horses.		Remarks.
	Officers.	Staff-Sergeants and Sergeants.	Rank and file.	Interpreter.	Total.	Private, or provided under Allowance Regulations.	Public. — Draught.	
Major-General	1	5	3	...	* Has charge of all horses in the Brigade, with the exception of those belonging to the Army Service Corps.
Brigade-Major	1	...	...	...		2	...
Aide-de-Camp	1	...	...	...		2	...
Chaplain	1	...	...	...		1	...
Veterinary Officer* ...	1	10	1	...	† Major-General ... 3 Brigade-Major ... 2 Aide-de-Camp ... 2 Chaplain ... 1 Veterinary Officer 1 <hr/> 9
Staff Clerk ... ..	...	1	...	...		...	...
Servants and Bâtmén ...	...	...	9†	...	15 4	...	...
<i>Attached.</i> Military Foot Police... ..	...	1	9	...		...	...
<i>Army Service Corps,</i> <i>Transport</i> ... ..	...	...	4	...		...	6
Post Office Corps ... ..	...	1	3	...		...	...
Interpreter... ..	...	...	...	1		...	...
Total	5	3	21	1	30	9	...	
	...	...	4	...	4	...	6

Details shown in *italics* are provided by Army Service Corps, and are, therefore, excluded from the Staff totals.

DETAIL OF THE STAFF OF A CAVALRY BRIGADE, WITH OFFICERS, &c., ATTACHED.

Ranks.	Personnel.					Horses.			Remarks.	
	Officers.	Staff-Sergeants and Sergeants.	Rank and File.	Civilians.	Total.	Private, or provided under Allowance Regulations.	Public.			
							Riding.	Draught.		
<i>Officers.</i>										
Major-General	1	4	5		
Brigade-Major	1	...	...	...		3	...	...
Aide-de-Camp	1	...	...	...		3	...	...
Chaplain	1	...	...	...		1	...	...
Staff Clerk	...	1	9	*Major-General ... 3 Brigade-Major ... 2 Aide-de-Camp ... 2 Chaplain ... 1 <hr/> 8	
Servants and Bâtmen	...	...	8*	...		...	...	...
<i>Attached.</i>										
Military Mounted Police	...	1	4	...	8	...	5	...		
Army Service Corps	...	...	5	...		...	1	8
Post Office Corps	...	1	1	...		...	...	...
Interpreter	...	...	...	1		...	1	...
Total	4	3	13	1	21	12	6	...		
	...	...	5	...	5	...	1	8

Organisation.

NOTE:—Details shown in *italics* are included in the Army Service Corps, and therefore excluded from the Staff totals.

Modern Tactics.

										Assistant Provost-Marshal	1
										Chaplains	2
										Surgeon-Colonel	1
										Surgeon-Major	1
										Quartermaster	1
										Assistant Commissary- General of Ordnance ...	1
										Veterinary Lieut.-Colonel	2
											30
										§ Clerks for D.A.A.G. (B.)	

DETAIL OF THE STAFF OF AN ARMY CORPS, WITH OFFICERS, &C., ATTACHED.

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Modern Tactics.

Ranks.	Personnel.						Horses.			Remarks.
	Officers.	Warrant Officers.	Staff-Sergeants and Sergeants.	Rank and File.	Civilians.	Total.	Private, or provi- ded under Allow- ance Regulations.	Public.		
								Riding.	Draught.	
General Commanding	1	29	6	* 2 for A duties. 1 " B "
Aides-de-Camp	4	...	...	...	...		12	...	...
Deputy Adjutant-General	1	...	...	...	...		3	...	...
Assistant Adjutants-General	3*	...	...	...	...		9	...	...
Deputy-Assistant Adjutants-General... ..	3*	...	...	...	...		9	...	...
Commandant, Headquarters	1	...	...	...	...		1	...	...
Provost-Marshal	1	...	...	...	...		2	...	...
Officer Commanding R.A.	1	...	...	...	...		3	...	...
Brigade-Major, R.A.	1	...	...	...	...		2	...	...
Aide-de-Camp, R.A.	1	...	...	...	...		2	...	...
Chief Engineer	1	...	...	...	...		3	...	...
Brigade-Major, R.E.	1	...	...	...	...		2	...	...
Aide-de-Camp, R.E.	1	...	...	...	...		2	...	...
Principal Chaplain	1	...	...	...	...	1	...	...
Chaplain	1	...	...	...	...	1	...	...
Principal Medical Officer	1	...	...	...	...	2	...	...
Surgeon-Majors	2	...	...	...	...	2	...	...
Orderly Medical Officer... ..	1	...	...	...	...	1	...	...
Deputy Commissary-General (Ordnance)	1	...	...	...	...	2	...	...
Principal Veterinary Officer	1	...	...	...	...	2	...	...
Veterinary Officer†	1	...	...	...	...	2	...	...
Clerks in Adjutant-General's (A) Office ... ..	...	1	4‡	...	...	13	...	...	‡ One acts as Quartermaster-Sergeant when required.
Clerk to Officer Commanding, R.A.)	1
Clerk to Chief Engineer	1
Clerks to Medical Department	1	2
Clerks to Deputy Commissary-General (Ordnance)...	2
Clerk to Principal Veterinary Officer... ..	...	...	1	...	...	...	...	...

Compounder to Surgeon Major	...	...	...	...	1	...	...	...	57	...	...	...	§ General	...	5
Orderly to Principal Medical Officer	...	...	...	...	...	1	...	...	...	...	...	...	Aides-de-Camp	...	8
Orderly to Surgeon-Major	...	...	...	...	...	1	...	...	...	...	...	...	Deputy Adjutant-General	...	2
Servants and Bâtmen	...	...	...	...	...	54§	...	...	...	...	...	...	Assist. Adjutant-General...	...	6
<i>Field Intelligence Department.</i>															
Assistant Adjutant-General	...	...	...	1	...	...	...	...	2	3	...	...	Dep.-Asst. Adj's.-Gen.	...	6
Deputy-Assistant Adjutant-General	...	...	...	1	...	...	...	...	...	3	...	...	Commandant	...	1
Clerks, R.E.	...	...	...	...	...	1	1	...	...	...	...	...	Provost-Marshal	...	2
Military Mounted Police	...	...	...	...	...	...	5	...	13	...	5	...	Officer Commanding R.A.	...	2
Servants and Bâtmen	...	...	...	...	...	...	4	...	...	...	...	...	Royal Artillery Staff	...	4
Interpreters	...	...	...	...	...	...	...	2	...	...	1	...	Chief Engineer	...	2
<i>Attached.</i>															
Military Police	...	Mounted	...	...	1	1	1	9||	...	...	12	...	Royal Engineer Staff	...	4
	...	Foot	...	...	...	1	1	9	...	...	...	...	Chaplains	...	2
Army Service Corps	...	Transport	...	...	2	...	1	33	...	40	2	2	44	Principal Medical Officer	2
	...	Supply ¶	...	...	2	...	2	2	...	40	2	2	44	Medical Officers	3
Post Office Corps	...	...	...	...	2	...	1	6||	...	2	...	...	Dep. Com.-Gen. Ord.	...	2
Interpreters	...	...	...	...	...	...	...	...	8	...	...	...	Principal Vet. Officer	...	2
Total	...	...	...	...	34	3	15	92	10	154	77	18	...	Orderly Vet. Officer	1
	...	...	...	...	2	...	3	35	...	40	2	2	44	Total	54

¶ Includes bātmen for Officers.
¶ Clerks for Adjutant-General's (B) Office.

Organisation.

NOTE.—Numbers in *italics* are included in the company of Army Service Corps, and are therefore excluded from the totals of this Staff.

DETAIL OF THE STAFF OF A CAVALRY DIVISION, WITH OFFICERS, &c., ATTACHED.

Ranks	Personnel.						Horses.			Remarks.
	Officers.	Warrant Officer.	Staff-Sergeants and Sergeants.	Rank and File.	Civilians.	Total.	Private, or provided under Allowance Regulations.	Public.		
								Riding.	Draught.	
Lieutenant-General	1	15	4	* 1 for A duties. 1 " B "
Aides-de-Camp	2	...	...	...	...		6	...	...
Assistant Adjutant-General	1	...	...	...	...		2	...	...
Deputy-Assistant Adjutants-General	2*	...	...	...	...		6	...	...
Assistant Provost-Marshal	1	...	...	...	...		2	...	...
Officer Commanding Horse Artillery	1	...	...	...	...		3	...	...
Adjutant, Horse Artillery	1	...	...	...	...		3	...	...
Chaplain	1	...	...	...	...		1	...	...
Surgeon-Colonel (P.M.O.)	1	...	...	...	...		2	...	...
Surgeon-Major	1	...	...	...	...		2	...	...
Quartermaster (Medical Staff)	1	...	...	...	...	1	...	...	† One of these clerks acts as Quartermaster-Ser- geant.
Assistant Commissioner-General of Ordnance	1	...	...	...	...	2	...	...
Veterinary Lieutenant-Colonel	1	...	...	...	...	2	...	...
Clerks to Assistant Adjutant-General ... ..	...	...	2†	...	...	...	...	...
Clerk to Officer Commanding Horse Artillery ... ..	...	...	1	...	...	...	...	...
Clerks to P.M.O. and Quartermaster, ... ..	...	...	1	2	...	...	...	...
Clerk to Assist. Commissary-General of Ordnance ... ..	...	...	1	...	...	8	...	...
Clerk to Veterinary Lieutenant, Colonel	1

TOOLS AND EXPLOSIVES.

TABLE showing the amount of various Tools, &c.) carried by units in the field.
[All "Waggon and Cart Stores" (see footnote) and tools carried for repairs are excluded from this calculation.]

Unit.	Intrenching Imple- ments.	Shovels.		Pickaxes.		Spades, N.P.	Axes.		Billhooks.	Saws.		Guncotton, dry, in lbs.*	Sandbags.	Crowbars.	Hooks, reaping.	Remarks.
		5 lb. 2 oz.	3 lb. 4 oz.	7 lb. 9 oz.	3 lb. 6 oz.		Felling.	Hand.		Cross-cut.	Hand.					
<i>Cavalry Regiment.</i>																
Pioneers' (in pack-saddle cases	8	...	8	...	4	...	...	4	20	...	...	...	* Primers as well as slabs are included in the weight given.
equipment } personal equipment	36	...	...	...
In four small-arm ammunition waggons	40	...	40	...	16	...	32	...	...	146	160	8	48	
In four squadron waggons	16	
	40	8	40	8	16	4	32	...	4	202	160	8	64	
	12	...	24	12	...	12	...	6	...	...	...	...
<i>Battery, Royal Artillery.</i>																
On gun carriages and ammunition waggons	12	...	24	12	...	12	...	6	...	...	...	...
<i>Mounted Detachment, Royal Engineers.</i>																
On six pack animals ...	}	6	...	18	...	30	12	6	24	3	6	136	600	6	...	
In three small-arm ammunition waggons		6	...	...	...	...	6	...	...	...	6	...	...	...	...
With six forage carts		6	...	...	...	...	...	...	...	...	6	...	...	...	...
		12		18	...	30	18	6	24	3	12	436	600	6	...	

<i>Field Company, Royal Engineers.</i>															
On pack-animals	...	24	...	18	...	2	6	6	12	...	2	...	50	2	...
In four tool carts, and with other carts and waggons†	...	89	...	53	...	9	33	20	31	4	14	420	950	8	...
	...	113	...	71	...	11	39	26	43	4	16	420	1000	10	...
<i>Field Park, Royal Engineers.</i>															
In waggons	...	78	...	48	...	...	48	...	48	4	12	660	1000	10	...
<i>Mounted Infantry Battalion.</i>															
In company waggons	...	...	...	...	...	...	...	...	...	...	...	...	...	32	...
In small-arm ammunition waggons	...	...	60	...	60	...	24	...	48	...	...	...	240	12	72
	...	...	60	...	60	...	24	...	48	...	...	...	240	12	104
<i>Infantry Battalion.</i>															
With pioneers and rank and file	422§	...	11	...	6	...	6	7	6	...	2	...	...	...	...
In tool-cart	...	...	100	...	100	...	4	4	20	...	...	...	20	4	...
	422	...	111	...	106	...	10	11	26	...	2	...	20	4	...

† The actual distribution of these stores has not yet been worked out.

§ This number is calculated for 50 per cent. of the rank and file of a Battalion (exclusive of band, pioneers, drivers, and details left at the base) at war establishment.

NOTE.—In addition to the above, all waggons, except B.L. ammunition waggons, R.A., carry as “Waggon Stores” one shovel (5 lb. 2 oz.); one pickaxe (7 lb. 9 oz.); one spade, N.P.; one felling-axe, one billhook, and two reaping-hooks. Forage carts and S.A.A. carts have one reaping-hook as part of their “Cart Stores.”

FROM FIELD ARMY ESTABLISHMENTS.

(Issued with Army Orders, dated December, 1892.)

TABLE I.

A.—NOTES ON TRANSPORT IN THE FIELD.

The Transport has been calculated to carry—

AMMUNITION.

(a) Number of rounds carried in the field for each 12-pr. gun.

Nature of Projectile.	With Battery.	With Divisional Reserve.†	With Ammunition Park.	Total.	Remarks.
Shrapnel	80	56	54	190	* Four rounds per battery are carried in Divisional or Corps Troops Ammunition Column. † The term "Divisional Reserve" includes a Corps Troop Ammunition Column.
Common	20	14	14	48	
se	8	4	4	16	
r	2	*	...	2	
Total	110	74	72	256	

(b) Number of rounds (303) carried in the field for each Lee-Metford rifle.

For each Rifle in	On Soldier.	With Unit. In Small-arm Ammunition Carts or Waggon, or on Mules.	With Unit. In Baggage Waggon.	With Divisional Reserve.	With Ammunition Park.	Total.	Remarks.
Pontoon Troop ...	50	...	80	130	† All reserve ammunition is included in that for the two machine guns with the section.
Field Company, R.E.	50	...	50	30	30	160	
„ Park, R.E. ...	50	...	80	...	...	130
Mounted Infantry Battalion	100(c)	84	...	56	76	316(a)	‡ A battalion with Corps troops has 74 rounds per rifle in Divisional Reserve and 59 in Ammunition Park.
Mounted Infantry Machine Gun Section	100†	...	...	...	...	100
Company Dismounted Signallers ...	50	...	...	34	...	84
Infantry Battalion	100(c)	65	20(d)	77‡	60‡	322(b)	
Infantry Machine Gun Section	100†	100	

(a) Calculated for 935 rifles per battalion.

(b) " " 880

(c) Before going into action this should be made up to 150 rounds by drawing on the Divisional Reserve. If, however, this is not possible, the Regimental Reserve must be utilised.

(d) Transferred to S.A.A. carts with battalion, when an action is imminent (Vide Note n, page 123).

(c) Number of rounds (.303 inch) available in the field for each machine gun.

For each Machine Gun with	On Gun-carriage.	With Unit. In Small-arm Ammunition Carts or Waggon.	With Divisional Reserve.	In Field Depots.	Total.	Remarks.
Cavalry Section	3,500	17,050	13,200	26,250	60,000	
Mounted Infantry Section	3,500	17,600	13,200	25,700	60,000	
Infantry Section	4,000	6,600	8,800	20,600	40,000	

(d) Number of rounds (.45 inch rolled case) available in the field for each Martini-Henry carbine.

For each Carbine in	On Soldier.	With Unit. In Small-arm Ammunition Waggon.	With Unit. In Baggage Waggon.	With Divisional Reserve.	In Field Depots.	Total.	Remarks.
Cavalry Regiment	30	57	...	20	90	200*	* Calculated for 500 carbines per regiment.
Cavalry Machine Gun Section	30	100	...	...	...	135
Company, Mounted Signallers	30	...	...	40	...	70
Battery, Horse Artillery	20	...	...	20	20	60
" Field Artillery	20	20	20	60	† Includes Corps Troops Ammunition Column.
Ammunition Columns†	20	...	...	20	...	40
Ammunition Park	20	...	...	...	20	40
Mounted Detachment, Royal Engineers	50	...	50	20	17	140	
Telegraph Battalion, (mounted men	20	...	20	40	‡ Not provided for Bakery Company.
Royal Engineers (dismounted men	50	...	80	...	...	130
Balloon Section, Royal Engineers	50	...	50	...	...	100
Company, Army Service Corps	20	...	...	10†	...	30

Organisation.

(e) Number of rounds carried in thech Webley pistol.

For each Pistol in	On Soldier.	With Unit. In Small-arm Ammuni- tion Carts or Waggons.	With Divisional Reserve.	With Ammuni- tion Park.	Total.	Remarks.
Cavalry Regiment	} 12	24	36	* Includes Corps Troops Ammunition Column.
„ Machine Gun Section						
Battery Horse or Field Artillery ...	12	...	24	...	36	
Divisional Ammunition Columns* ...	12	...	12	...	24	
Ammunition Park	12	...	...	12	24
Mounted Detachment, Royal Engineers	12	...	24	...	36	
Field Company, Royal Engineers ...	12	...	24	...	36	
Other Units, Royal Engineers	12	...	12	...	24	
Mounted Infantry Battalion	12	24	...	...	36
Infantry Battalion... ..	12	24	...	...	36
„ Machine Gun Section	12	24	36	† Not provided for Bakery Companies.
Company, Army Service Corps	12	...	12†	...	24	
Military Police and other details not specified above	12	...	...	...	12

TACTICAL ORGANISATION AND EQUIPMENT OF A BATTALION OF INFANTRY.

Although a battalion war establishment for service abroad consists of 1,096 of all ranks and 11 G.S. waggons (2 headquarters, 4 companies, 2 supplies, 3 tents), for tactical purposes a battalion is 800 rifles.

REGIMENTAL STAFF AND PERSONNEL.

1 lieutenant-colonel, 1 major, 1 adjutant, 1 quartermaster, 1 medical officer (attached), 1 transport officer (regimental subaltern), sergeant-major (W.O.).

Every battalion is divided into 8 companies, each commanded by either a major or a captain with 2 subalterns under him.

Every company is subdivided into 2 half companies, 4 sections, and 8 subsections. For tactical calculations (according to the Drill Book, 1896), each company is reckoned to be 100 rifles.

TRANSPORT.

(Exclusive of G.S. waggons.)

4 Carts, ammunition ;
1 Cart, entrenching tools ;
2 Mules, ammunition ;
1 Mule, medical stores ;
Entrenching tools ;

with pioneers and rank and file
calculated at 50 per cent. of the rank
and file (exclusive of band, drivers,
&c.)

422 Intrenching implements,
11 Shovels,
6 Pickaxes,
6 Felling-axes,
7 Hand-axes,
6 Billhooks,
2 Hand-saws,

IN TOOL-CART.

100 Shovels,
100 Pickaxes,
10 Felling-axes,
11 Hand-axes,
26 Billhooks,
2 Hand-saws,
20 Sandbags,
4 Crowbars.

ARMS.

Staff-sergeants	Swords and revolvers.
Band, drummer, and pioneers.....	Swords
Drivers	Revolvers.
Sergeants and rank and file.....	Rifles and bayonets.

The rifle is the Lee-Metford Magazine, .303 bore, sighted from 200 to 2,900 yards; it is bolt action; has a muzzle velocity of 2,000 feet per second with cordite; it has a very flat trajectory, and shoots with accuracy; at 500 yards the culminating point of the trajectory covers a man standing; there is practically no recoil. The weight of the rifle with an empty magazine is 9lbs. 4oz.; the magazine contains 10 cartridges; 10 rounds of ammunition weigh 10 oz., the length of the bullet is 1.25 inches, and its weight 215 grains Av.

PERSONAL EQUIPMENT.

The infantry is equipped with the "Valise equipment," which consists of a valise carried on the back which contains the "field kit" and 20 rounds of ammunition; a great-coat carried on the waistbelt; mess-tin carried between the valise and the great-coat; and two pouches which contain 80 rounds of ammunition; a haversack, a water-bottle, and a pair of leggings. As above-stated in addition 50 per cent. of the men carry intrenching tools known as Wallace's spade, the handle of which forms a pick.

The weight of the entire equipment including rifle and bayonet and 100 rounds of ammunition is about 50 lbs.

TACTICAL ORGANISATION AND EQUIPMENT OF A CAVALRY REGIMENT.

Although a regiment war establishment for service abroad consists of 667 of all ranks and 20 carts and waggons and 1 mule, for tactical purposes a regiment consists of 4 squadrons, each consisting of 96 sabres. Each squadron is divided into 2, 3, or 4 troops. When a squadron consists of 80 men 4 troops are formed.

A squadron has 2 majors or captains and 4 subaltern officers.

INTRENCHING TOOLS.

These are carried chiefly in the carts; but the pioneer equipment is carried in 2 large leather cases (suitable for placing on a pack-saddle) and on the saddles of the pioneers, of whom there are 1 N.C. officer and 4 privates to each squadron.

The 2 leather cases in each squadron contain:

- 1 Hand-axe
- 2 Pickaxes.
- 1 Hand-saw.
- 2 Spades.
- 8 Gurspikes.
- 4 1-lb. slabs of guncotton, &c.

The pioneer N.C. officer carries 4 gunspikes, twine, wire, pliers, and 9 2-oz. guncotton primers, and 2 of the pioneer privates carry 2 1-lb. slabs of guncotton.

EQUIPMENT.

The horse equipment complete weighs about 47 lbs. The trooper's equipment comprises a portion of his "field kit" carried in wallets; cloak strapped in front of the wallets; forage-caps, haversack; pouch-belt and pouch containing 30 rounds per carbine; mess-tin, &c.

Including the weight of the rider and his equipment the horse carries from 18 to 20 stone. Hussar regiments are the lightest. Undoubtedly cavalry regiments will shortly be equipped with the new "folding boat," which has recently been added to the equipment of the German cavalry.

ARMS.

In dragoon and hussar regiments the sergeants and rank and file are armed with swords, attached when mounted to the saddles, a carbines; lancer regiments have a lance in addition. Staff-sergeants and trumpeters have revolvers in place of carbines. Four heavy cavalry regiments are armed with lances in the front rank.

The carbine is the Martini-Metford, calibre .303, weight 8 lbs. 1½ oz. It takes the Lee-Metford ammunition, and is sighted from 200 to 1,400 yards.

The cavalry sword is 34½ inches long in the blade and weighs 2 lbs. 9 oz. without the scabbard. The lance is 9 feet long and weighs 4½ lbs.

TACTICAL ORGANISATION AND EQUIPMENT OF A BATTERY OF ARTILLERY.

A battery is commanded by a major with a captain as second in command and 3 lieutenants. It is divided into 3 sections, each under a lieutenant. Each section is divided into 2 subdivisions. Horse artillery batteries have mounted detachments. Field battery gunners walk, except when the battery is moving faster than a walk, when they ride on the carriages.

An artillery brigade division consists of 2 or 3 batteries under a lieutenant-colonel with an adjutant. The whole of the artillery of an army corps is under a brigadier-general, with a brigade-major and an aide-de-camp.

EQUIPMENT.

Guns and limbers, 6.
Ammunition waggons, 6.
Forge waggon, 1.
Store waggon, 1.
A.S. waggons, 2.
Artillery waggons, 3.

INTRENCHING TOOLS.—12 pickaxes, 24 spades, 12 felling-axes, 12 billhooks, 6 hand-saws. Various demolition stores.

ARMS.

The horse artillery and field artillery are both armed with the 12-pr. B.L. gun. The mountain artillery with 7-prs.

In horse artillery all ranks have the cavalry sword. Drivers have the Webley pistol.

In field artillery non-commissioned officers and trumpeters have cavalry swords, drivers pistols, and each gunner has a sword-bayonet. There are 12 carbines per battery of horse and field artillery. In garrison artillery every non-commissioned officer and man has a carbine and sword-bayonet. The range of the 12-pr. gun is limited by human vision ; its useful range is practically 3,500 yards, although the gun is sighted up to 6,000 yards.

The effective range of case is between 300 and 400 yards.

MAP A.

MAY, 1893.

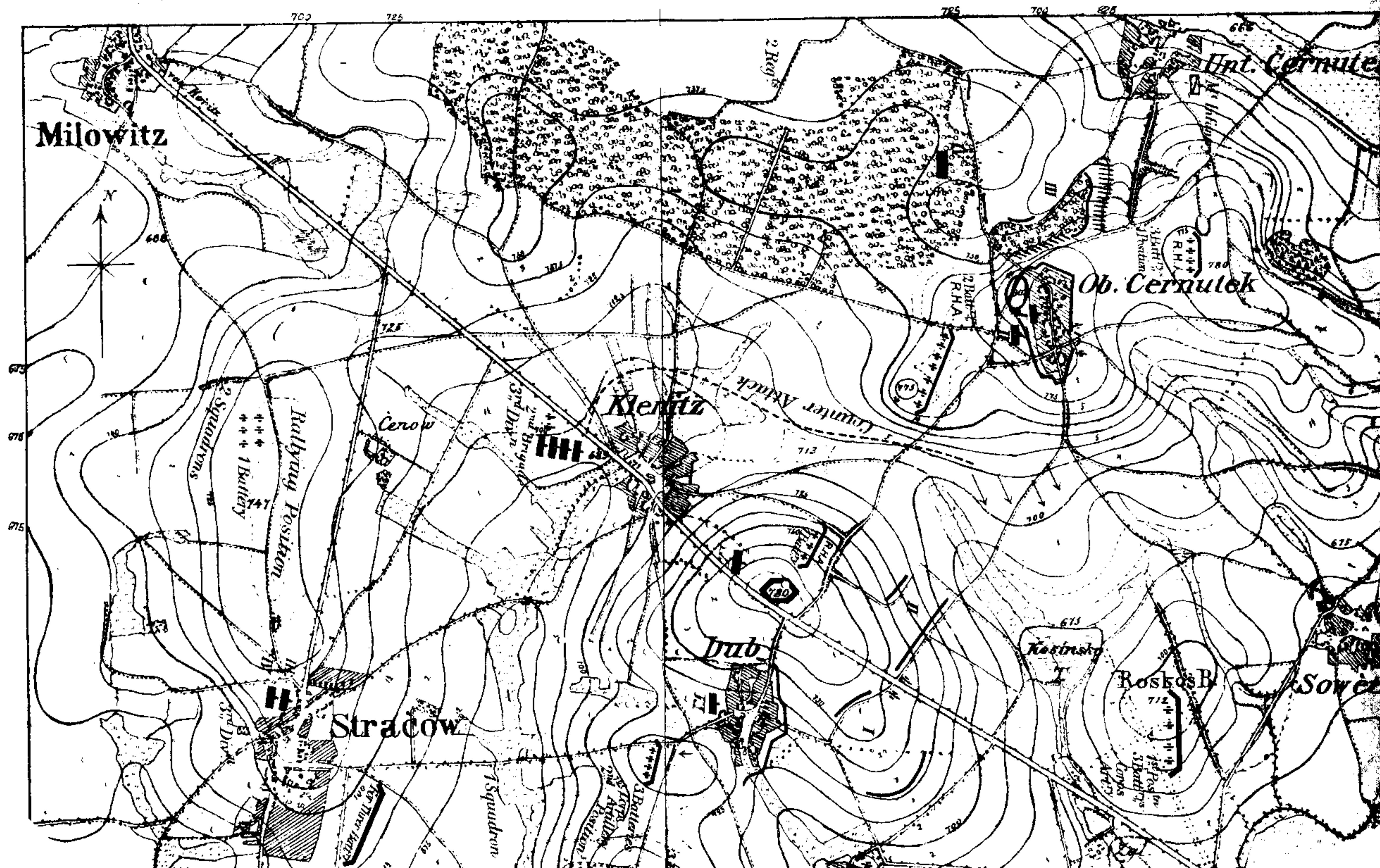
Ground held by First Line
 Battalion
 Cavalry
 Artillery
 Machine Gun
 Redoubt
 Clearing
 Epaulment
 Mounted Inf'y
 Meadow Land

LIEUTENANTS. FOR PROMOTION.

TACTICS.

Cavalry Piquet
 Cavalry Connecting Post
 Double Sentry
 Connecting Sentry
 Detached Post or Ex Guard
 Infantry Piquet
 " Support
 " Patrol

(By permission)





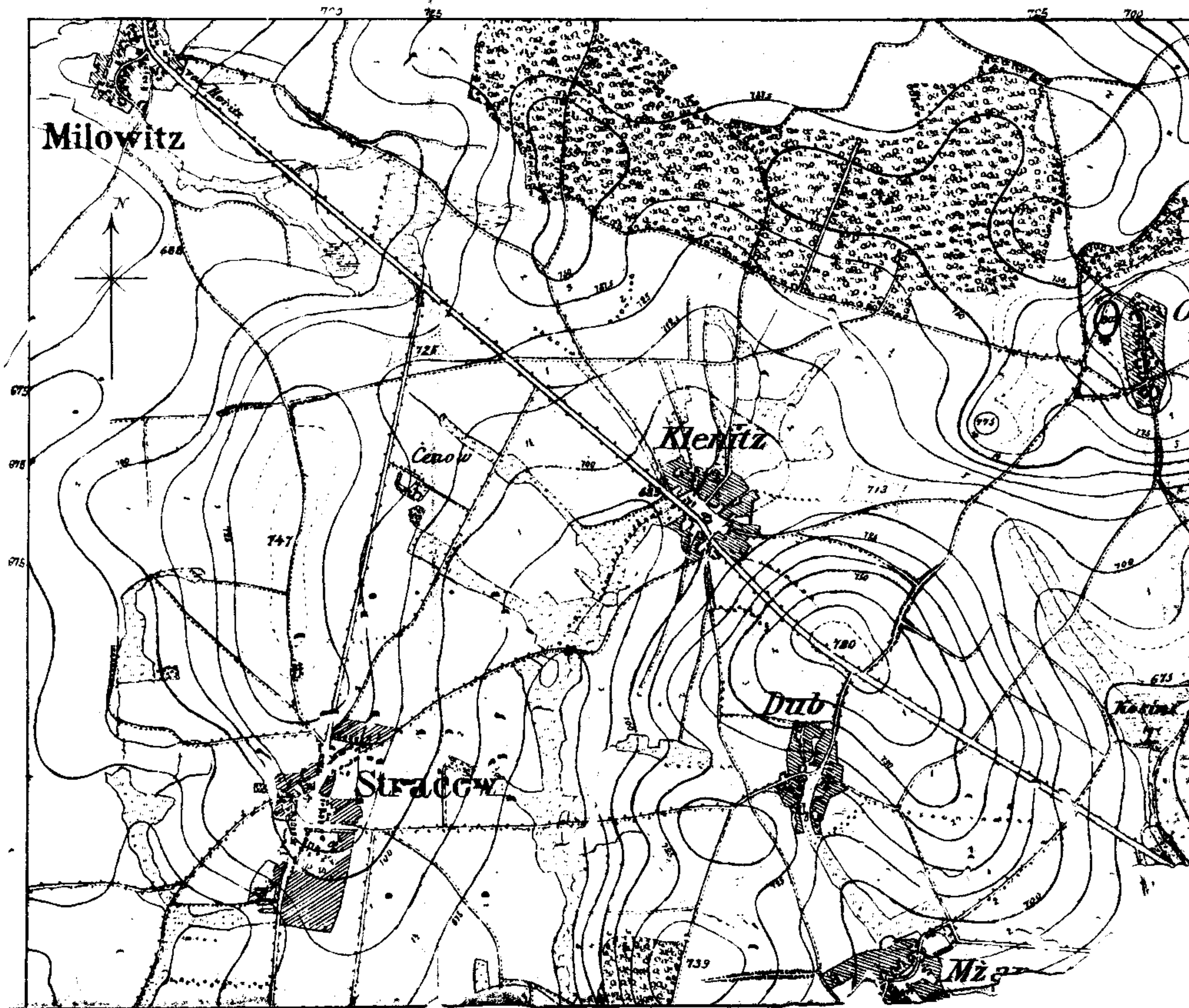
Scale, $\frac{1}{25,000}$ or 2.534 inches = 1 mile.

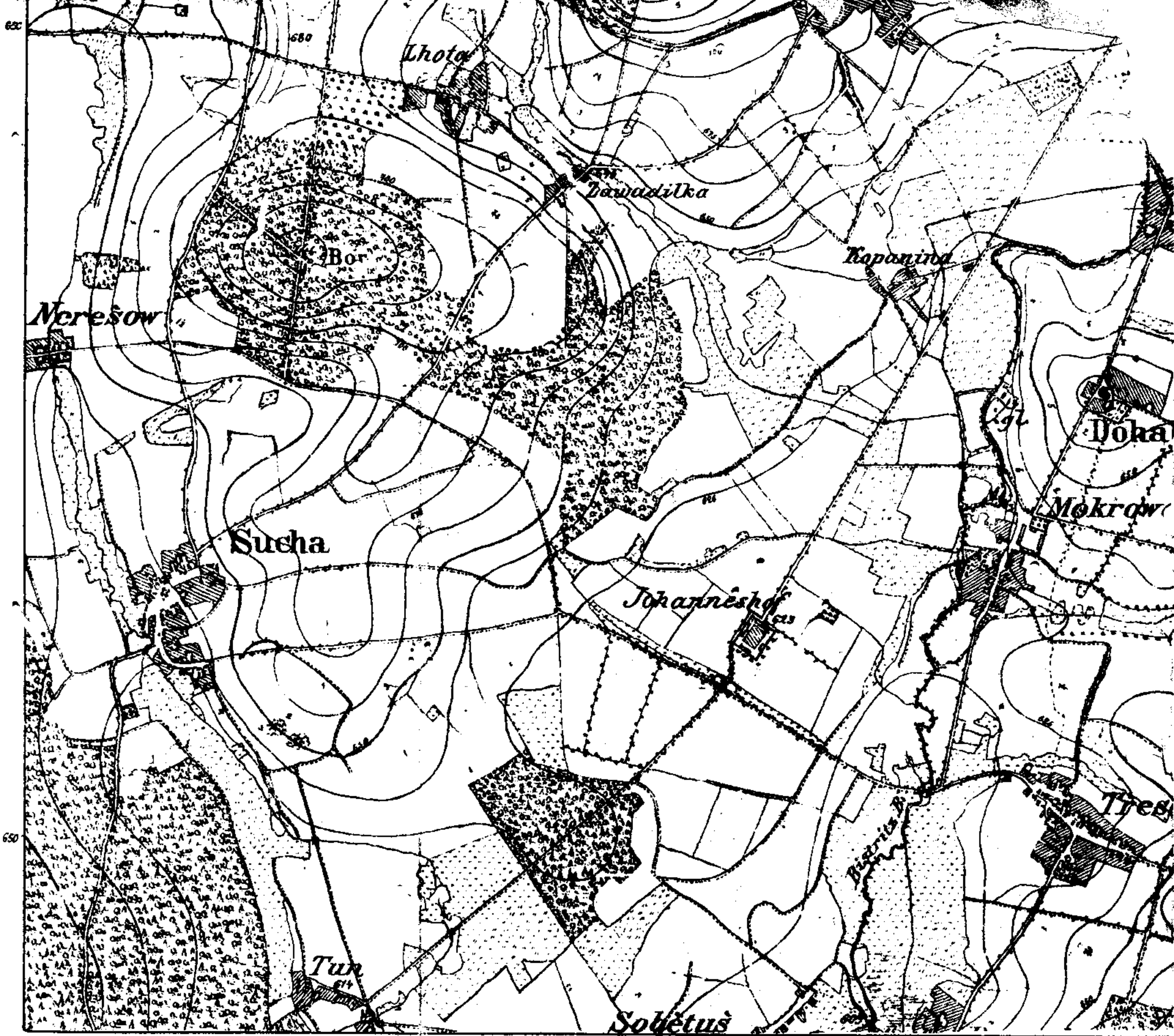


MAP B.

MAY, 1893.

LIEUTENANTS. FOR PROMOTION
TACTICS.





Scale, $\frac{1}{25,000}$ or 2.534 inches = 1 mile.



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